

THE UNIVERSITY
OF ILLINOIS
LIBRARY

C
K13uH
1919/20

Return this book on or before the
Latest Date stamped below. A
charge is made on all overdue
books.

University of Illinois Library

MAR 28 1953

L161—H41

THE
UNIVERSITY OF KANSAS
LAWRENCE

ANNUAL CATALOG

UNIVERSITY OF ILLINOIS LIBRARY

OCT 18 1920



1919-1920

BOARD OF ADMINISTRATION.

Educational, Charitable, and Correctional Institutions.

MEMBERS.

HENRY J. ALLEN, GOVERNOR,

Ex officio Chairman.

H. J. PENNEY.

E. L. BARRIER.

WILBUR N. MASON.

JAS. A. KIMBALL, BUSINESS MANAGER.

SECTION I.

General Information.

(3)

UNIVERSITY CALENDAR.

Academic Year, 1919-'20.

January 3, Saturday—Close of Christmas recess.
January 26 to 30, Monday to Friday, inclusive—Semester examinations.
February 2, Monday—Beginning of second semester; enrollment in classes.
February 3, Tuesday—Beginning of class work in all departments.
February 12, Tuesday, Lincoln's birthday—Legal holiday.
April 2 to 5, Friday to Monday, inclusive—Easter recess.
April 6, Tuesday—Beginning of second half-semester.
May 31 to June 4, Monday to Friday, inclusive—Semester examinations.
June 6, Sunday, 8 p. m.—Baccalaureate sermon.
June 8, Tuesday, 10:30 a. m.—Alumni address.
June 8, Tuesday, 8 p. m.—Chancellor's reception.
June 9, Wednesday, 10 a. m.—Commencement exercises.
June 14, Monday—Beginning of Summer Session.

Academic Year, 1920-'21.

September 13, 14, 15, Monday, Tuesday, Wednesday—Entrance examinations and registration.
September 14, 15, Tuesday, Wednesday—Enrollment in classes.
September 16—Beginning of class work in all departments.
September 17, Friday—General assembly and annual address, at 10 a. m.
November 15, Monday—Beginning of second half-semester.
November 24 to 27, Wednesday to Saturday, inclusive—Thanksgiving recess, beginning Wednesday noon.
CHRISTMAS RECESS—Saturday, December 18, to Saturday, January 1, inclusive.
January 24 to 29, Monday to Friday, inclusive—Semester examinations.
January 31, Monday—Beginning of second semester; enrollment in classes.
February 1, Tuesday—Beginning of class work in all departments.
February 22, Tuesday, Washington's birthday—Legal holiday.
March 25 to 28, Friday to Monday, inclusive—Easter recess.
March 29, Tuesday—Beginning of second half-semester.
May 30 to June 3, Monday to Friday, inclusive—Semester examinations.
June 5, Sunday, 8 p. m.—Baccalaureate sermon.
June 6, Monday, 8 p. m.—Sigma Xi address.
June 7, Tuesday, 10:30 a. m.—Alumni address.
June 7, Tuesday, 8 p. m.—Chancellor's reception.
June 8, Wednesday, 10 a. m.—Commencement exercises.
June 13, Monday—Beginning of Summer Session.

CHRONOLOGICAL TABLE.

- 1855—(December). A university provided for in the first constitution of Kansas territory, at Topeka.
- 1857—(June). State University at Lawrence provided for by free-state legislature, Topeka.
- (September). Seminary of learning provided for in Lecompton constitution.
- 1858—(April). System of public instruction, including a university department, provided for in Leavenworth constitution.
- 1859—(July). State University provided for as at present, in Wyandotte constitution, now the constitution of the state of Kansas.
- 1861—Congress set apart and reserved for the use and support of a State University seventy-two sections of land.
- 1863—Lawrence selected as location for the University of Kansas.
- 1864—The University organized by the legislature.
- 1865—March 21, first meeting of the Board of Regents.
- 1866—July 19, Regents elected the first Faculty of the University, consisting of Elial Jay Rice, A. M., David Hamilton Robinson, A. M., and Francis Huntington Snow, A. M.
- North College erected.
- September 12, first session of the University opened at North College.
- 1870—Department of Engineering organized.
- 1872—Fraser Hall erected and occupied.
- 1876—Normal Department established.
- 1877—Department of Music organized.
- 1878—Department of Law organized.
- 1883—Medical Hall (old Chemistry Building) erected.
- 1885—Department of Pharmacy established.
- Normal Department discontinued.
- 1886—Snow Hall erected.
- 1891—The University reorganized; the Preparatory Department discontinued and the Schools of Arts, Engineering, Law, Fine Arts, and Pharmacy established.
- 1894—Spooner Library erected.
- Chancellor's residence erected.
- 1895—Blake Hall erected.
- 1896—The Graduate School established.
- 1899—The Fowler Shops erected.
- The School of Medicine established.
- 1900—Chemistry and Pharmacy Building erected.
- 1902—Dyche Museum of Natural History erected.
- 1903—Summer Session established.
- 1904—The name of the School of Arts changed to the College of Liberal Arts and Sciences.
- Green Hall erected.
- 1905—Full four-year course in medicine established.
- Eleanor Taylor Bell Memorial Hospital erected.
- 1906—Robinson Auditorium-Gymnasium erected.
- Clinical Laboratory erected.
- Nurses' Training School established.
- 1907—Marvin Hall erected.
- 1908—Haworth Hall erected.
- Power Plant and Laboratories erected.
- 1909—The School of Education established.
- The Division of University Extension established.
- 1911—First wing of Administration Building erected.
- State Hospital erected at Rosedale.
- Clay-working Laboratory erected.
- 1915—Dispensary at Rosedale erected.
- Oread Training School Building erected.
- 1916—Vivarium erected.
- 1918—West wing and portion of central section Administration building erected.
- 1919—Observatory erected.
- Reserve Officers' Training Corps established.

OFFICERS OF ADMINISTRATION.

THE UNIVERSITY.

FRANK STRONG,* Ph. D., Chancellor.

Room 103, Fraser Hall.

Hours: 10 a. m. to 12 m. and 2 to 4 p. m.

WM. L. BURDICK, Ph. D., Vice President.

Room 206, Green Hall.

Hours: First semester, 11:30 a. m. to 12:30 p. m.; second semester, 9 to 10:30 a. m.

GEORGE O. FOSTER, A. B., Registrar.

Room 109, Fraser Hall.

Hours: 8 a. m. to 12 m. and 2 to 5 p. m.

JOHN M. SHEA, Superintendent of Buildings and Grounds.

Room 201, Repair Shop.

ALBERTA L. CORBIN, Ph. D., Adviser of Women.

Room 114, Fraser Hall.

Hours: 9:30 to 11:30 a. m. and 2:30 to 4:30 p. m.

HENRY A. SHINN, A. B., University Marshal.

Room 5, Green Hall.

Hours: 9:30 a. m. to 12 m.

THE SCHOOLS.

FRANK W. BLACKMAR, Ph. D., Dean of the Graduate School.

Room 101 East Administration Building.

Hours: 9:30 a. m. to 12 m.

OLIN TEMPLIN,† A. M., Dean of the College of Liberal Arts and Sciences.

Room 102, Fraser Hall.

Hours: 10:30 a. m. to 12 m.

D. L. PATTERSON, B. S., Assistant Dean of the College of Liberal Arts and Sciences.

Room 106, Fraser Hall.

PERLEY F. WALKER, M. M. E., Dean of the School of Engineering.

Room 112, Marvin Hall.

Hours: 9 a. m. to 12 m.

JAMES W. GREEN,‡ A. M., Dean of the School of Law.

HAROLD L. BUTLER, A. B., Dean of the School of Fine Arts.

Room 111, Administration Building.

Hours: 9 a. m. to 12 m. and 2 to 5 p. m.

CARL A. PREYER, Mus. D., Associate Dean of the School of Fine Arts.

Room 113, Administration Building.

* Resigned, to take effect June, 1920. Appointed Professor of Constitutional Law, effective September, 1920.

† Resigned, to take effect June, 1920.

‡ Died November 4, 1919.

LUCIUS E. SAYRE, Ph. M., Dean of the School of Pharmacy.

Room 215, Chemistry and Pharmacy Building.

Hours: 10 to 11 a. m.

———, Dean of the School of Medicine.

MERVIN T. SUDLER, Ph. D., Associate Dean of the School of Medicine.

Tuesdays and Saturdays at Lawrence.

Mondays, Wednesdays, Thursdays and Fridays at Rosedale.

FREDERICK J. KELLY, Ph. D., Dean of the School of Education.

Room 119, Fraser Hall.

Hours: 11 a. m. to 12 m. and 3 to 4 p. m.

THE DIVISIONS.

FREDERICK J. KELLY, Ph. D., Director of Summer Session.

Room 119, Fraser Hall.

Hours: 11 a. m. to 12 m. and 3 to 4 p. m.

HAROLD G. INGHAM, A. B., Acting Director of University Extension.

Room 117, Fraser Hall.

Hours: 8 a. m. to 12 m. and 2 to 5 p. m.

FORREST C. ALLEN, D. O., Director of Athletics.*

Room 203, Robinson Gymnasium.

Hours: 10 a. m. to 12 m.

———, Director of Libraries.

FRANK STRONG, Ph. D., *ex officio* Director of Museums.

Room 103, Fraser Hall.

Hours: 10 a. m. to 12 m. and 2 to 4 p. m.

ARVIN S. OLIN, LL. D., Director of University Publications.

———, Director of State Service Work.

———, Director of University Surveys.

ARTHUR T. WALKER, Ph. D., Director of Vocations.

Room 112, East Administration Building.

Hours: 11:30 a. m. to 12:30 p. m. and 2:30 to 3:20 p. m.

* This division is in process of reorganization.

UNIVERSITY OF ILLINOIS LIBRARY

OCT 18 1920

OFFICERS OF INSTRUCTION.

FRANK STRONG,* Chancellor of the University and President of the Faculties.

A. B. Yale, 1884; A. M. Yale, 1893; Ph. D. Yale, 1897; LL. D. Oregon, Baker, Kansas Agricultural College, 1909. Lecturer in History, Yale, 1897-99; President University of Oregon, 1899-1902. Present position, 1902.

WILLIAM LIVESEY BURDICK, Vice President of the University and Professor of law.

A. B. Wesleyan, 1882; A. M. Wesleyan, 1885; Ph. D. Chattanooga, 1884; LL. B. Yale, 1898; Professor of Law, Kansas, 1898-1916. Present position, 1916.

PROFESSORS.

EPHRAIM MILLER, Emeritus Professor of Mathematics and Astronomy.

A. B. Allegheny, 1855; A. M. Allegheny, 1858; Ph. D. Allegheny, 1895. Professor of Mathematics and Astronomy, Kansas, 1874-1910. Dean of the School of Arts, Kansas, 1895-1903.

JAMES WOODS GREENE,¹ Dean of the School of Law and Professor of Law.

A. B. Williams, 1866; A. M. Williams, 1886. Present position, 1878.

EDGAR HENRY SUMMERFIELD BAILEY, Professor of Chemistry and Metallurgy and Director of Chemical Laboratories.

Ph. B. Yale, 1873; Ph. D. Illinois Wesleyan, 1883. Instructor in Chemistry, Yale, 1873-74; Instructor in Chemistry, Lehigh, 1874-83. Present position, 1883.

ALEXANDER MARTIN WILCOX, Professor of Greek Language and Literature.

A. B. Yale, 1877; Ph. D. Yale, 1880. Assistant in Greek, Wesleyan, 1880-83. Present position, 1885.

LUCIUS ELMER SAYRE, Dean of the School of Pharmacy, Professor of Pharmacy and Materia Medica.

Ph. G. Philadelphia College of Pharmacy, 1866; Ph. M. Philadelphia College of Pharmacy, 1896; B. S. Michigan, 1897. Instructor, Philadelphia College of Pharmacy, 1880-85. Present position, 1885.

FRANK WILSON BLACKMAR, Dean of the Graduate School and Professor of Sociology.

Ph. B. University of the Pacific, 1881; A. M. University of the Pacific, 1884; Ph. D. Johns Hopkins, 1889. Professor of Mathematics, University of the Pacific, 1882; Professor of History and Sociology, Kansas, 1889-99; Dean of the Graduate School, 1897; Professor of Sociology and Economics, Kansas, 1899-1911. Present position, 1897.

CHARLES GRAHAM DUNLAP, Professor of English Literature.

A. B. Ohio Wesleyan, 1883; A. M. Ohio Wesleyan, 1899; Litt. D. Princeton, 1892. Assistant Professor of English Literature, Kansas, 1887; Associate Professor of English Literature, Kansas, 1889. Present position, 1890.

CARL ADOLPH PREYER, Associate Dean of the School of Fine Arts and Professor of Piano and Composition.

Mus. D. Baker, 1909. Professor of Piano, Counterpoint, Canon and Fugue, Kansas, 1892-1915. Present position, 1915.

* Resigned, to take effect June, 1920. Appointed Professor of Constitutional Law, effective September, 1920.

1. Died November 4, 1919.

OLIN TEMPLIN,* Dean of the College of Liberal Arts and Sciences, and Professor of Philosophy.

A. B. Kansas, 1886; A. M. Kansas, 1890. Instructor in Mathematics, Kansas, 1884; Assistant Professor of Mathematics, Kansas, 1886; Associate Professor of Philosophy, Kansas, 1890; Professor of Philosophy, Kansas, 1892. Present position, 1903.

EDWIN MORTIMER HOPKINS,² Professor of Rhetoric and English Language.

A. B. Princeton, 1888; A. M. Princeton, 1890; Ph. D. Princeton, 1894. Assistant Professor of English, Kansas, 1889; Associate Professor of English, Kansas, 1892. Present position, 1893.

FRANK HEYWOOD HODDER, Professor of American History and Political Science.

Ph. M. Michigan, 1888. Instructor in History and Economics, Cornell, 1885-89; Assistant Professor of Economics, 1889-90; Associate Professor of American History, 1891-93. Present position, 1893.

ERASMUS HAWORTH, Professor of Geology and Mineralogy.

B. S. Kansas, 1881; M. S. Kansas, 1884; Ph. D. Johns Hopkins, 1888. Associate Professor of Geology, Kansas, 1892. Present position, 1894.

ARTHUR TAPPAN WALKER, Professor of Latin Language and Literature, and Director of Vocations.

A. B. New York, 1887; A. M. Vanderbilt, 1892; Ph. D. Chicago, 1898. Professor of Latin and Greek, Juniata, 1888-90; Professor of Latin and Greek, Emory and Henry, 1892-93; Instructor in Latin, Chicago, 1894-97. Present position, 1897.

WILLIAM CHASE STEVENS, Professor of Botany.

B. S. Kansas, 1885; M. S. Kansas, 1893. Assistant in Botany, 1889-92; Associate Professor of Botany, 1892-99. Present position, 1899.

ARVIN SOLOMON OLIN, Professor of Education and Director of Publications.

A. B. Ottawa, 1892; A. M. Kansas, 1894; LL. D. Ottawa, 1915. Instructor in Pedagogy, Kansas, 1893; Associate Professor of Pedagogy, Kansas, 1894; Professor of Education, Kansas, 1899; Dean of the Summer Session, Kansas, 1913-15; Acting Dean of the School of Education, Kansas, 1913-14; Dean of the School of Education, Kansas, 1914-15. Present position, 1899.

WILLIAM ALEXANDER GRIFFITH, Professor of Drawing and Painting.

Academie Julien. Professor of Drawing and Painting, Washburn, 1893-94; Instructor in Drawing, Washington, 1895-97. Present position, 1899.

EUGENIE GALLOO, Professor of Romance Languages and Literatures.

Academie de Paris, Brevet, 1881, Sorbonne, 1884; B. L. Michigan, 1892; A. M. Kansas, 1895. Assistant Professor of French, 1892; Associate Professor of French and Spanish, 1899-1900. Present position, 1900.

CHARLES SANFORD SKILTON, Professor of Organ, Theory of Music and Music History.

A. B. Yale, 1889. Dean of the School of Fine Arts, 1903-15. Present position, 1903.

IDA HENRIETTA HYDE,³ Professor of Physiology.

A. B. Cornell, 1891; Ph. D. Heidelberg, 1896. Associate Professor of Physiology, Kansas, 1899. Present position, 1905.

WILLIAM HAMILTON JOHNSON, Professor of Education.

A. B. Kansas, 1885; A. M. Kansas, 1891. Professor of History and Pedagogy, Emporia State Normal, 1893-96. Present position, 1905.

PERLEY F. WALKER, Dean of the School of Engineering and Professor of Industrial Engineering.

B. M. E. Maine, 1896; M. E. Maine, 1900; M. M. E. Cornell, 1901. Instructor in Mechanical Engineering, Maine, 1896-1900; Professor of Mechanical Engineering, Maine, 1902-05; Professor of Mechanical Engineering, Kansas, 1905-13. Present position, 1913.

* Resigned as Dean, effective June, 1920.

2. Absent on leave.

3. Absent on leave.

MERVIN TUBMAN SUDLER, Associate Dean of the School of Medicine, and Professor of Surgery.

B. S. Maryland Agricultural, 1894; M. S. 1897; Ph. D. Johns Hopkins, 1889; M. D. College of Physicians and Surgeons, Baltimore, 1901. Instructor in Anatomy, Johns Hopkins, 1900-02; Instructor in Anatomy and Surgery, Cornell, 1902-03; Dean of the Scientific Department, School of Medicine, Kansas, 1905-11. Present position, 1911.

JACOB BLOCK, Professor of Genito-urinary Surgery.

M. D. Medical College of Ohio, 1879. Present position, 1905.

S. S. GLASSCOCK, Professor of Psychiatry.

M. D. Rush, 1887. Present position, 1905.

ISADORE JULIUS WOLF, Professor of Internal Medicine.

M. D. Munich, 1887. Present position, 1905.

JAMES NAISMITH, Professor of Physical Education.

A. B. McGill, 1887; M. D. Gross Medical, 1898; M. P. E. Springfield Y. M. C. A. College, 1910. Instructor, Springfield Y. M. C. A. College, 1891; Associate Professor of Physical Education, Kansas, 1898. Present position, 1906.

SAMUEL JOHN HUNTER, Professor of Entomology.

A. B. Kansas, 1893; A. M. Kansas, 1893. Assistant Professor of Entomology, Kansas, 1896; Associate Professor of Entomology, Kansas, 1899. Present position, 1906.

WILLIAM EDWARD HIGGINS,⁴ Professor of Law.

B. S. Kansas, 1888; LL. B. Kansas, 1894. Assistant Professor of Law, 1894; Associate Professor of Law, 1900. Present position, 1906.

FRANKLIN E. MURPHY, Professor of Clinical Medicine.

M. D. Pennsylvania, 1893. Present position, 1907.

L. D. HAVENHILL, Professor of Pharmacy.

Ph. C. Michigan, 1893; Ph. M. Michigan, 1894; B. S. Kansas, 1903. Assistant Professor of Pharmacy, 1899-1906; Associate Professor of Pharmacy, 1906-08. Present position, 1908.

FREDERICK EDWARD KESTER, Professor of Physics.

M. E. Ohio, 1895; A. M. Cornell, 1899; Ph. D. Cornell, 1905. Assistant in Physics, Ohio, 1895-98; Instructor in Physics, Ohio, 1899-1901; Assistant Professor of Physics, Ohio, 1901-03, 1905-07; Associate Professor of Physics, Ohio, 1907-09. Present position, 1909.

GEORGE CARL SHAAD, Professor of Electrical Engineering.

B. S. Pennsylvania State, 1900; E. E. Pennsylvania State, 1905. Instructor in Electrical Engineering, Wisconsin, 1902-04; Assistant Professor of Electrical Engineering, Wisconsin, 1904-06; Assistant Professor of Electrical Engineering, Massachusetts Institute of Technology, 1906-07; Associate Professor of Electrical Engineering, Massachusetts Institute of Technology, 1907-09. Present position, 1909.

SAMUEL JAY CRUMBINE, Professor of Preventive Medicine.

M. D. Cincinnati, 1889. Present position, 1910.

HAMILTON PERKINS CADY, Professor of Chemistry.

A. B. Kansas, 1897; Ph. D. Kansas, 1903. Assistant Professor of Chemistry, 1899-1905; Associate Professor of Chemistry, 1905-11. Present position, 1911.

LYMAN L. UHLS, Professor of Psychiatry.

M. D. Rush, 1884. Present position, 1911.

ANDREW L. SKOOG, Professor of Neurology.

M. D. Northwestern, 1902. Present position, 1911.

LINDSEY STEPHEN MILNE, Professor of Medicine.

M. B., Ch. B., M. D. Edinburgh, 1908. Present position, 1912.

4. Absent on leave.

HERBERT ALLAN RICE, Professor of Mechanics and Structural Engineering.

C. E. Ohio, 1897. Instructor in Civil Engineering, Lehigh, 1902-05; Assistant Professor of Civil Engineering, Kansas, 1905-06; Associate Professor of Civil Engineering 1906-13. Present position, 1913.

BENNET MILLS ALLEN, Professor of Zoölogy.

Ph. B. De Pauw, 1898; Ph. D. Chicago, 1903. Instructor in Zoölogy, Wisconsin, 1903-08; Assistant Professor of Zoölogy, Wisconsin, 1908-13. Present position, 1913.

EDMUND HOWARD HOLLANDS, Professor of Philosophy.

Ph. B. Cornell, 1899; A. M. Cornell, 1901; Ph. D. Cornell, 1905. Instructor in Philosophy, Cornell, 1905-06; Instructor in Philosophy, Princeton, 1906-07; Instructor in Philosophy, Cornell, 1907-09; Assistant Professor of Philosophy, Hamilton, 1909-10; Professor of Philosophy, Butler, 1910-13. Present position, 1913.

HENRY WILBUR HUMBLE, Professor of Law.

A. M. Cornell, 1908; LL. B. Cincinnati, 1904; J. D. Chicago, 1915. Assistant in Economics, Cornell, 1907-08; Associate Professor of Law, Kansas, 1908-13. Present position, 1913.

EDWARD JAMES CURRAN, Professor of Ophthalmology.

M. D. Harvard, 1908; D. Ophth. Oxon, 1910. Present position, 1913.

GOLDWIN GOLDSMITH, Professor of Architecture.

Ph. B. Columbia, 1896; Atelier Duray, Paris, 1896-97. Present position, 1913.

WILLIAM ARCH MCKEEVER, Head of Department of Child Welfare.

A. M. Kansas, 1898; Ph. M. Chicago, 1904; LL. D. Berea, 1917. Professor of Philosophy, Kansas State Agricultural College, 1900-13. Present position, 1913.

FRANK BURNETT DAINS, Professor of Chemistry.

Ph. B. Connecticut Wesleyan, 1890; M. S. Wesleyan, 1891; Ph. D. Chicago, 1898. Assistant Professor of Chemistry, Northwestern, 1895-1901; Professor of Chemistry, Washburn, 1902-11; Associate Professor of Chemistry, Kansas, 1911-14. Present position, 1914.

CLEMENT CLARENCE WILLIAMS, Professor of Civil Engineering.

B. S. Southern Iowa Normal, 1900; B. S. in C. E. Illinois, 1907; C. E. Colorado, 1909. Instructor, Southern Iowa Normal, 1900-02; Instructor in Civil Engineering, Colorado, 1907-09; Assistant Professor of Civil Engineering, Colorado, 1909-14. Present position, 1914.

ELMER FRANKLIN ENGEL, Professor of German.

A. B. Kansas, 1892; A. M. Harvard, 1898. Assistant in German, Kansas, 1892-96; Assistant Professor of German, Kansas, 1896-1905; Associate Professor of German, Kansas, 1905. Present position, 1914.

ARTHUR MACMURRAY, Professor of Public Speaking.

A. B. Kansas, 1896; M. O. Ott School of Expression, 1904. Professor of Public Speaking, Iowa State College, 1908-14. Present position, 1914.

ELIZABETH CADE SPRAGUE, Professor of Home Economics.

Graduate, Boston Normal School of Household Arts, 1898. Instructor in Home Economics, Lake Erie, 1900-01; Research Assistant, Illinois, 1901-05; Instructor in Home Economics, Chicago, 1905-13. Present position, 1914.

WILLIAM BELL DOWNING, Professor of Voice and Public School Music.

Graduate, Drake, 1905; Professor of Voice, Highland Park, 1907-09; Instructor in Voice, Drake, 1909-13. Present position, 1914.

DON CARLOS GUFFEY, Professor of Obstetrics and Gynecology.

B. S. Missouri, 1899; M. S. Kansas, 1908; M. D. Pennsylvania, 1905. Present position, 1914.

PETER THOMAS BOHAN, Professor of Clinical Medicine.

M. D. Rush, 1900. Instructor in Internal Medicine, 1905. Present position, 1914.

GEORGE M. GRAY, Professor of Clinical Surgery.

M. D. Kansas City Medical, 1879; M. D. Bellvue, 1880. Present position, 1914.

RAPHAEL DORMAN O'LEARY, Professor of English.

A. B. Kansas, 1893; A. B. Harvard, 1895. Assistant Professor of English, Kansas, 1895-1906; Associate Professor of Rhetoric, 1906-15. Present position, 1915.

RAYMOND ALFRED SCHWEGLER, Professor of Education.

A. B. Brown, 1899; A. M. Ottawa, 1907. Associate Professor of Education, Kansas, 1907-15. Present position, 1915.

ARTHUR JEROME BOYNTON, Professor of Economics.

A. B. Harvard, 1901; A. M. Columbia, 1902. Assistant Professor of Economics, 1903-10; Associate Professor of Economics, Kansas, 1910-15. Present position, 1915.

CHARLES HAMILTON ASHTON, Professor of Mathematics.

A. B. Union, 1887; A. M. Harvard, 1893; Ph. D. Munich, 1909. Instructor in Mathematics, Harvard, 1894-1903; Assistant Professor of Mathematics, Kansas, 1903-10; Associate Professor of Mathematics, 1910-15. Present position, 1915.

HAROLD LANCASTER BUTLER, Dean of the School of Fine Arts and Professor of Voice.

A. B. Valparaiso, 1894; Graduate, School of Music, Valparaiso, 1895; LL. B. Valparaiso, 1896; Graduate, Gottschalk Lyric School, Chicago, 1898. Instructor in Voice, Valparaiso, 1896-98; Director, School of Music, Valparaiso, 1890-1904; Director Vocal Department, College of Fine Arts, Syracuse, 1904-15. Present position, 1915.

ARTHUR NEVIN, Professor of Ensemble and Music Extension.

Conductor of Chorus Work, McDowell Memorial Association. Present position, 1915.

HARRY CONRAD THURNAU, Professor of Germanic Languages and Literatures.

A. B. Michigan, 1899; A. M. Michigan, 1903; Ph. D. Michigan, 1909. Instructor in German, University of Michigan, 1905-12; Associate Professor of German, Oberlin College, 1912-15. Present position, 1915.

FREDERICK JAMES KELLY, Dean of the School of Education, Director of the Summer Session and Professor of Education.

A. B. Nebraska, 1902; Ph. D. Columbia, 1914. Director of the Training School, State Normal, Spearfish, S. Dak., 1908-12; Director of the Training School, State Normal, Emporia, Kan., 1914-15. Present position, 1915.

DAVID LESLIE PATTERSON, Professor of European History and Assistant Dean of the College of Liberal Arts and Sciences.

B. S. Pennsylvania State, 1895. Instructor in History, Wisconsin, 1905-08; Associate Professor of History, Kansas, 1908-16; Acting Associate Professor of History, Wisconsin, 1914-15. Present position, 1916.

LEON NELSON FLINT, Professor of Journalism.

A. B. Kansas, 1897. Lecturer in Journalism, Kansas, 1906-09; Assistant Professor of Journalism, 1909-13; Associate Professor of Journalism, 1913-16. Present position, 1916.

FREDERICK HUBBARD SIBLEY, Professor of Mechanical Engineering and Director of Fowler Shops.

Ph. B. Brown, 1898; M. E. Case, 1904. Assistant Professor of Mechanical Engineering, Case, 1907; Professor of Mechanical Engineering, Alabama, 1912; Assistant Professor of Mechanical Engineering, Kansas, 1912-13; Associate Professor of Mechanical Engineering, 1913-16. Present position, 1916.

WILLIAM L. MCBRIDE, Professor of Dermatology.

M. D. Rush, 1901. Associate Professor of Dermatology, 1905-16. Present position, 1916.

RICHARD L. SUTTON, Professor of Dermatology.

M. D. University Medical College, 1901; M. D. George Washington, 1904. Associate Professor of Dermatology, 1911-16. Present position, 1916.

GEORGE ELLETT COGHILL, Professor of Anatomy.

A. B. Brown, 1896; M. S. New Mexico, 1899; Ph. D. Brown, 1902. Assistant Professor of Biology, New Mexico, 1899-1901; Professor of Biology, Pacific, 1902-06; Professor of Biology, Willamette, 1906-07; Professor of Zoölogy, Denison, 1907-13; Associate Professor of Anatomy, Kansas, 1913-16. Present position, 1916.

RAYMOND ASA KENT, Professor of Education.

A. B. Cornell College, 1903; A. M. Columbia, 1910; Ph. D. Columbia, 1916. Instructor in Mathematics, State Normal School, Winona, Minn., 1909-11; Principal University High School and Assistant Professor of Education, Minnesota, 1914-16. Present position, 1916.

OLE OLUFSON STOLAND, Professor of Physiology.

A. B. South Dakota, 1905; M. S. Chicago, 1911; Ph. D. Chicago, 1913. Instructor in Biology, South Dakota, 1906-11; Assistant in Physiology, Chicago, 1911-13; Professor of Physiology, South Dakota, 1913-16. Present position, 1916.

WALTER SAMUEL HUNTER, Professor of Psychology.

A. B. Texas, 1910; Ph. D. Chicago, 1912. Instructor in Philosophy, Texas, 1912-14; Adjunct Professor of Psychology, Texas, 1914-16. Present position, 1916.

WILLIAM MATHEWS HEKKING, Professor of Drawing and Painting.

B. P. Syracuse, 1908; Art Students' League, New York; Academie Julien; Academie Colorossi. Instructor in Drawing, Syracuse, 1911-12; Director, School of Fine and Applied Arts, James Millikin, 1912-15; Associate in Drawing, Department of Architecture, Illinois, 1915-16. Present position, 1916.

FRANK ESTES KENDRIE, Professor of Violin and Orchestral Ensemble.

A. B. Bowdoin, 1910; A. M. Harvard, 1912. Professor of Violin, Valparaiso, 1914-17. Present position, 1917.

GEORGE JUSSEN HOOD, Professor of Engineering Drawing.

B. S. Kansas, 1902. Assistant Professor of Mechanical Drawing, Kansas, 1902-11; Associate Professor of Mechanical Drawing, 1914-17. Present position, 1917.

CARL FERDINAND NELSON, Professor of Physiological Chemistry.

A. B. Wisconsin, 1908; A. M. Wisconsin, 1910; Ph. D. Wisconsin, 1912, M. D. Rush, 1917. Instructor in Chemistry, Iowa, 1908-11; Instructor in Chemistry, Illinois, 1912; Associate Professor of Physiological Chemistry, Kansas, 1913-17. Present position, 1917.

ARTHUR LESLIE OWEN, Professor of Hispanic Languages.

A. B. Vermont, 1906; A. M. Illinois, 1909. Assistant Professor of Romance Languages, Kansas, 1910; Instructor in Romance Languages, Chicago, 1913; Associate Professor of Romance Languages, Kansas, 1914-18. Present position, 1918.

NOBLE PIERCE SHERWOOD, Professor of Bacteriology.

B. S. Kansas, 1905; A. M. Kansas, 1911. Instructor in Bacteriology, Kansas, 1910-13; Assistant Professor of Bacteriology, Kansas, 1913-16; Associate Professor of Bacteriology, Kansas, 1916-18. Present position, 1918.

GEORGE OTIS FOSTER, Registrar.

A. B. Kansas, 1901. Present position, 1899.

HAROLD DE FOREST BURDICK, Professor of Military Science and Tactics.

U. S. Naval Academy, 1908; Captain of Coast Artillery. Present position, 1919.

CLINTON MASON YOUNG, Professor of Mining Engineering.

B. S. in Mining, Case, 1904; E. M. Case, 1909. Associate Professor of Mining, Kansas, 1906-14; Assistant Professor, Mining Research, Illinois, 1916-19. Present position, 1919.

WALTER ROBINSON SMITH, Professor of Sociology.

Ph. B. Missouri Valley, 1899; Ph. M. Chicago, 1901; Ph. D. Chicago, 1907. Instructor, History and Political Science, Washington U., 1903-07; Professor Social Sciences, Heidelberg College, 1907-09; Professor of Sociology and Economics, Kansas State Normal, Emporia, 1909-1919. Present position, 1919.

CHESTER ARTHUR BUCKNER, Professor of Education.

A. B. Iowa, 1909; A. M. Iowa, 1911; Ph. D. Columbia, 1917. Assistant Professor of Education, Kansas, 1914-16; in charge of Educational Measurements, the Lincoln School of Teachers' College, 1917-19. Present position, 1919.

HERMAN CAMP ALLEN, Professor of Chemistry.

A. B. McPherson, 1904; A. M. Kansas, 1905; Ph. D. Cornell, 1912. Assistant Professor of Chemistry, 1910-14; Associate Professor of Chemistry, 1914-1919. Present position, 1919.

SELDEN LINCOLN WHITCOMB,* Professor of Comparative Literature.

A. M. Columbia, 1893; Litt. D. Grinnell, 1918. Professor of English Literature, Grinnell, 1895-1905; Associate Professor of English Literature, Kansas, 1905-1918; Associate Professor of Comparative Literature, Kansas, 1918-19. Present position, 1919.

LOUIS EUGENE SISSON, Professor of English.

A. B. Leland Stanford, 1904; A. M. Harvard, 1909. Instructor in Rhetoric, 1904-05; Assistant Professor of Rhetoric, 1905-10; Associate Professor of Rhetoric, 1910-19. Present position, 1919.

RAYMOND CECIL MOORE, Professor of Geology and Paleontology, and State Geologist.

A. B. Denison, 1913; Ph. D. Chicago, 1916. Assistant in Geology, Chicago, 1914-16; Instructor in Geology, Chicago, 1916; Assistant Professor of Geology and Paleontology, Kansas, 1916-18; Associate Professor of Geology and Paleontology, Kansas, 1918-19. Present position, 1919.

ALBERT JAMES HARNO, Professor of Law.

B. S. Dakota Wesleyan, 1911; LL. B. Yale, 1914. Dean, Washburn Law School, 1917-19. Present position, 1919.

ARTHUR E. HERTZLER, Professor of Surgery.

M. D. Northwestern, 1894; Ph. D. Illinois Wesleyan, 1902. Associate Professor of Surgery, Kansas, 1905-1919. Present position, 1919.

CHARLES ARTHUR HASKINS, Professor of Sanitary Engineering and Chief, Division of Water and Sewage, State Board of Health.

B. S. Kansas, 1910. Instructor of Civil Engineering, Kansas, 1911; Assistant Professor of Civil Engineering, Kansas, 1912; Associate Professor of Sanitary Engineering, Kansas, 1913-19. Present position, 1919.

HAROLD GREENE INGHAM, Acting Director of University Extension.

A. B. Milton, 1909. Instructor in Business Administration, Wisconsin, 1913-15. Secretary Correspondence Study Department, Kansas, 1915-18. Present position, 1918.

FORREST CLAIRE ALLEN, Professor of Physical Education and Director of Athletics.

D. O. Central College of Osteopathy, 1912. Professor of Physical Education, Central Missouri State Teachers' College, Warrensburg, 1912-19. Present position, 1919.

HARRY ROSWELL WAHL, Professor of Pathology and Bacteriology.

M. A. Wisconsin, 1910; M. D. Johns Hopkins, 1912. Assistant in Anatomy, Wisconsin, 1908-10; Instructor, Western Reserve, 1913-15; Associate, Western Reserve, 1915-19. Present position, 1919.

JACOB CHRISTIAN RUPPENTHAL, Acting Professor of Law.

LL. B. Kansas, 1895. Present position, 1919.

HENRY CANAL TRACY, Professor of Anatomy.

A. B. Dartmouth, 1902; A. M. Brown, 1905; Ph. D. Brown, 1910. Assistant in Physiology, Brown, 1904-07; Instructor in Anatomy, Northwestern, 1910-13; Professor of Anatomy, Marquette, 1913-19. Present position, 1920, second semester.

ASSOCIATE PROFESSORS.**MILES WILSON STERLING, Associate Professor of Greek.**

A. B. Kansas, 1883; A. M. Kansas, 1893. Assistant in Latin and Greek, Kansas, 1883-85; Assistant in Greek, 1885; Assistant Professor of Greek, Kansas, 1896-1901. Present position, 1901.

HANNAH OLIVER, Associate Professor of Latin.

A. B. Kansas, 1874; A. M. Kansas, 1888. Assistant Professor of Latin, 1890-1905. Present position, 1905.

WILLIAM FREDERICK KUHN, Associate Professor of Psychiatry.

A. M. Wittenberg, 1878; M. D. Jefferson Medical, 1885. Present position, 1905.

* Absent on leave, second semester, 1919-20.

WILLIAM KIRK TRIMBLE, Associate Professor of Clinical Pathology.

M. D. Kansas City Medical, 1900. Present position, 1905.

MARTIN EVERETT RICE, Associate Professor of Physics and Electrical Engineering.

B. S. Kansas, 1891; M. S. Kansas, 1893. Instructor in Physics, Kansas, 1892-95; Assistant Professor of Physics, Kansas, 1895-1901. Present position, 1906.

ALBERTA LINTON CORBIN, Adviser of Women and Associate Professor of German.

A. B. Kansas, 1893; Ph. D. Yale, 1902. Assistant Professor of German, Kansas, 1902-11; Associate Professor of German, 1911-18. Present position, 1918.

WILLIAM JACOB BAUMGARTNER, Associate Professor of Zoölogy.

A. B. Kansas, 1900; A. M. Kansas, 1901. Instructor of Zoölogy, Kansas, 1904-05; Assistant Professor of Zoölogy, Kansas, 1905-13. Present position, 1913.

HENRY OTTO KRUSE,⁵ Associate Professor of German.

A. B. Kansas, 1894; A. M. Kansas, 1903. Instructor in German, Kansas, 1904-05; Assistant Professor of German, 1905-13. Present position, 1913.

CLARENCE CORY CRAWFORD, Associate Professor of European History.

A. B. Kansas, 1903; A. M. Kansas, 1904; Ph. D. Wisconsin, 1906. Assistant in History, Wisconsin, 1904-06; Instructor in History, Missouri, 1906-07; Assistant Professor of European History, Kansas, 1907-13. Present position, 1913.

WILLIAM SAVAGE JOHNSON, Associate Professor of English Literature.

A. B. Yale, 1900; Ph. D. Yale, 1905. Instructor, Yale, 1905-08; Assistant Professor of English Literature, Kansas, 1908-13. Present position, 1913.

VICTOR EMANUEL HELLEBERG, Associate Professor of Sociology.

A. B. Yale, 1883; LL. B. Cincinnati, 1885. Instructor in Sociology, Chicago, 1908-10; Assistant Professor of Sociology, Kansas, 1910-13. Present position, 1913.

FREDERICK NEWTON RAYMOND, Associate Professor of Rhetoric.

A. B. Kansas, 1896; A. M. Columbia, 1897. Assistant Professor of Rhetoric, Kansas, 1901-14. Present position, 1914.

MARGARET LYNN, Associate Professor of English Literature.

B. S. Tarkio, 1899; A. M. Nebraska, 1900. Assistant Professor of English Literature, Kansas, 1901-14. Present position, 1914.

ELISE NEUEN SCHWANDER, Associate Professor of Romance Languages.

A. B. Kansas, 1898; Ph. D. Yale, 1913. Assistant Professor of Romance Languages, 1905-14. Present position, 1914.

WILLIAM WATSON DAVIS, Associate Professor of American History.

B. S. Alabama Polytechnic Institute, 1903; M. S. Alabama Polytechnic Institute, 1904; A. M. Columbia, 1906; Ph. D. Columbia, 1913. Lecturer in History, Columbia, 1908-09; Assistant Professor of American History, Kansas, 1910-14. Present position, 1914.

WILLIAM COLEMAN MCNOWN, Associate Professor of Civil Engineering.

B. S. Wisconsin, 1903. Instructor in Civil Engineering, Cornell, 1905-07; Professor of Civil Engineering, Earlham, 1907-09; Assistant Professor of Civil Engineering, Kansas, 1913-14. Present position, 1914.

ULYSSES GRANT MITCHELL, Associate Professor of Mathematics.

A. B. Kansas, 1906; A. M. Kansas, 1907; Ph. D. Princeton, 1910. Instructor in Mathematics, Kansas, 1906-08; Assistant Professor of Mathematics, Kansas, 1910-15. Present position, 1915.

ALFRED HIGGINS SLUSS, Associate Professor of Mechanical Engineering.

B. S. in Mech. Eng., Illinois, 1901. Assistant Professor of Mechanical Engineering, 1908-15. Present position, 1915.

ORVAL JAMES CUNNINGHAM, Associate Professor of Surgery.

M. D. Rush, 1904. Present position, 1915.

5. Absent on leave.

FLOYD CARLTON DOCKERAY, Associate Professor of Psychology.

A. B. Michigan, 1907; A. M. Michigan, 1909; Ph. D. Michigan, 1915. Assistant Instructor in Psychology, Michigan, 1908-09; Instructor in Psychology, Kansas, 1910-13; Assistant Professor, 1913-16. Present position, 1916.

HUBERT WILBUR NUTT, Associate Professor of Education, and Director of Oread Training School.

Ph. B. Chicago, 1914; Dean of Education, Marion Normal, 1909-12; Dean of Education, Muncie Normal, 1913-14; Assistant Professor of Education, Kansas, 1914-16. Present position, 1916.

JOSEPH GRANGER BRANDT, Associate Professor of Greek.

Ph. B. Lawrence College, 1903; Ph. D. Wisconsin, 1911. Instructor in Latin, Wisconsin, 1908-11; Carnegie Research Associate, American School of Classical Studies in Rome, 1911-12; Instructor in Latin, Wisconsin, 1912-13; Assistant Professor of Latin, Wisconsin, 1913-14; Assistant Professor of Latin and Greek, Wisconsin, 1914-15; Assistant Professor of Greek, Kansas, 1915-16. Present position, 1916.

RAYMOND FRIDMAN RICE, Associate Professor of Law.

A. B. Oberlin, 1905; LL. B. Kansas, 1908. Associate Professor of Law, Kansas, 1913-15. Present position, 1916.

ROBERT MCEWEN SCHAUFFLER, Associate Professor of Orthopedic Surgery.

A. B. Williams, 1893; M. D. Columbia, 1896. Associate Professor of Surgery, Kansas, 1905-11. Present position, 1917.

HERBERT BARKER HUNGERFORD, Associate Professor of Entomology.

A. B. Kansas, 1911; A. M. Kansas, 1913; Ph. D. Cornell, 1918. Instructor in Entomology, Kansas, 1911-13; Assistant Professor of Entomology, Kansas, 1913-17. Present position, 1917.

RALPH EMERSON CARTER, Associate Professor of Education.

Ph. B. Franklin, 1906; A. M. Chicago, 1911. Instructor in Education, Texas, 1912-13; Assistant Professor of Education, Kansas, 1913-17. Present position, 1917.

ELLIS BAGLEY STOFFER, Associate Professor of Mathematics.

A. B., A. M. Drake, 1907; Ph. D. Illinois, 1911. Assistant Professor of Mathematics, Kansas, 1914-17. Present position, 1917.

BLAINE FREE MOORE, Associate Professor of Political Science.

A. B. Kansas, 1901; A. M. Illinois, 1908; Ph. D. Columbia, 1913. Division Superintendent and Member of the Provincial Council in the Philippine Islands, 1901-06; Instructor in Government, University of Michigan, 1909-10; Assistant Professor of Political Science, George Washington University, 1910-15; Lecturer in Political Science, University of Wisconsin, 1913-14; Assistant Professor of Political Science, Kansas, 1915-17. Present position, 1917.

ROBERT DOUGLAS IRLAND, Associate Professor of Obstetrics and Gynecology.

M. D. Kansas, 1909. Instructor in Obstetrics, Kansas, 1911-15; Assistant Professor of Obstetrics, 1915-17. Present position, 1917.

GEORGE WEATHERWORTH STRATTON, Associate Professor of Chemistry.

A. B. Colorado, 1907; A. M. Ohio State, 1909; Ph. D. Ohio State, 1912. Instructor in Chemistry, Ohio State, 1909-12; Assistant Professor of Chemistry, Kansas, 1912-13; Assistant Professor of Chemistry, Kansas, 1914-18. Present position, 1918.

FRANCIS ELLIS JOHNSON, Associate Professor of Electrical Engineering.

A. B. Wisconsin, 1906; E. E. Wisconsin, 1909. Instructor in Electrical Engineering, Rice Institute, 1912-15; Instructor in Electrical Engineering, Kansas, 1915-16; Assistant Professor of Electrical Engineering, Kansas, 1915-18. Present position, 1918.

WILLIAM MCGLASHAN DUFFUS, Associate Professor of Economics.

A. B. Stanford, 1910; A. M. Wisconsin, 1913. Assistant Professor of Economics, Kansas, 1915-18. Present position, 1918.

THOMAS DYER TUTTLE, Associate Professor of Preventive Medicine.

M. D. Columbia University College of Physicians and Surgeons, 1892. Present position, May, 1919.

EUGENE SMITH, Head of University Health Department.

M. D. Rush, 1876. Instructor and Demonstrator in Anatomy, Kansas, 1903-1918. Present position, 1918.

JOHN ISE, Associate Professor of Economics.

Mus. B. Kansas, 1908; A. B. Kansas, 1910; LL. B. Kansas, 1911; A. M. Harvard, 1912; Ph. D. Harvard, 1914. Assistant in Economics, Harvard, 1912-13; Assistant Professor of Economics, Iowa State College, 1914-15; Associate Professor of Economics, Iowa State College, 1915-16; Assistant Professor of Economics, Kansas, 1916-19. Present position, 1919.

JOHN ROBINSON FRAZIER, Associate Professor of Drawing and Painting.

Graduate Rhode Island School of Design, 1909. Instructor in Drawing, Rhode Island School of Design, 1909-12; Instructor in Drawing, Bradley Institute, 1912-17; Assistant Professor of Drawing and Painting, Kansas, 1917-19. Present position, 1919.

LILA SHEPARD WELLINGTON, Associate Professor of Voice.

Certificate, Columbia University, 1917. Professor of Voice, Chase Conservatory, Columbus, Ga., 1916-19. Present position, 1919.

LEON B. MCCARTY, Associate Professor of Physical Education.

A. B. Ohio State, 1910; A. M. Ohio State, 1911. Instructor in Rhetoric, Kansas, 1912-16; Assistant Professor of Physical Education, Kansas, 1916-19. Present position, 1919.

DINSMORE ALTER, Associate Professor of Astronomy.

B. S. Westminster College, 1909; M. S. University of Pittsburg, 1910; Ph. D. California, 1916. Instructor in Physics and Astronomy, 1911-12; Assistant Professor of Physics and Astronomy, 1912-13, and Adjunct Professor of Physics and Astronomy, Alabama, 1913-14; Instructor in Astronomy, California, 1914-17; Assistant Professor of Astronomy, Kansas, 1917-19. Present position, 1919.

WILLIAM LEWIS EIKENBERRY, Associate Professor of the Teaching of Biological Sciences.

B. S. Michigan, 1894. Instructor in Science, Mt. Morris College, 1894-1901; Instructor in Botany, University High School, Chicago, 1909-16; Assistant in Natural Science, Chicago, 1909-16; Assistant Professor of the Teaching of Biological Sciences, 1916-19. Present position, 1919.

FRANK LOGAN BROWN, Associate Professor of Mechanics.

B. S. in C. E., Colorado, 1911. Instructor in Civil Engineering, Colorado, 1911-13; Assistant Professor of Mechanics, Kansas, 1913-19. Present position, 1919.

RICHARD LEONIDAS GRIDER, Associate Professor of Mining.

E. M. Colorado School of Mines, 1905. Instructor in Mining, University of Oregon, 1909-10; Instructor in Mining, Kansas, 1915-16; Assistant Professor of Mining, Kansas, 1916-19. Present position, 1919.

MARTHA MITCHELL BACON, Associate Professor of Physical Education.

M. D. College of Physicians and Surgeons, 1897. Present position, 1919.

WARD WILLIAM SULLIVAN, Associate Professor of History in University Extension Division.

A. B. Illinois, 1911; A. M. Illinois, 1914. Professor of History, Kansas State Normal, 1914-17; Assistant Professor of History in University Extension Division, Kansas, 1918-19. Present position, 1919.

ARTHUR JACKSON MIX, Associate Professor of Botany.

A. B. Hamilton, 1910; Ph. D. Cornell, 1916. Assistant Botanist, New York Agricultural Experiment Station, 1915-16; Instructor in Plant Pathology, Kansas, 1916-18; Assistant Professor of Botany, Kansas, third quarter, 1918-19. Present position, 1919.

WINTHROP PERRIN HAYNES, Associate Professor of Geology, Mineralogy and Petrology.

A. B. Harvard, 1910; A. M. Harvard, 1912; Ph. D. Harvard, 1914. Assistant in Geology, Harvard, 1908-16; Instructor in Geology, Radcliffe, 1911-14; Instructor in Geology, Wellesley, 1914-16; Assistant Professor of Geology, Mineralogy and Petrology, Kansas, 1916-19. Present position, 1919.

THOMAS GROVER ORR, Associate Professor of Surgery and Chief of the Dispensary.

A. B. University of Missouri, 1907; M. D. Johns Hopkins University, 1910. Instructor in Bacteriology, Kansas, 1915; Assistant Professor of Surgery, Chief of Dispensary and Pathologist to Bell Memorial Hospital, 1915-19. Present position, 1919.

CLARENCE BENJAMIN FRANCISCO, Associate Professor in Orthopedic Surgery.

M. D. Kansas, 1907. Instructor in Orthopedic Surgery, Kansas, 1905-17; Assistant Professor in Orthopedic Surgery, Kansas, 1917-19. Present position, 1919.

SOLOMON LEFSCHETZ, Associate Professor of Mathematics.

M. E. Ecole Centrale, 1905; Ph. D. Clark, 1911. Instructor in Mathematics, Nebraska, 1911-13; Instructor in Mathematics, Kansas, 1913-16; Assistant Professor of Mathematics, Kansas, 1916-19. Present position, 1919.

ASSISTANT PROFESSORS.

CHARLES MORGAN STERLING, Assistant Professor of Pharmacognosy.

A. B. Kansas, 1897. Present position, 1901.

EDWIN FISKE STIMPSON, Assistant Professor of Physics.

B. S. Kansas, 1890. Instructor in Physics, 1901-05. Present position, 1905.

FRANK EVERETT JONES, Assistant Professor of Engineering Drawing.

Instructor in Carpentry and Pattern Making, 1903-06; Assistant Professor of Pattern Making and Foundry, 1906-15; Superintendent of Fowler Shops, 1915-19. Present position, 1919.

JAMES EDWARD TODD,⁶ Assistant Professor of Geology and Mineralogy.

A. B. Oberlin, 1867; M. A. Oberlin, 1870. Professor of Natural Sciences, Tabor, 1871-92; Adjunct Professor of Natural Sciences, Beloit, 1881-83; Professor of Geology and Mineralogy, South Dakota, 1892-1903. Present position, 1907.

HARRIET GREISINGER, Assistant Professor of Piano.

Mus. B. Kansas, 1895. Instructor in Piano, 1902-07. Present position, 1907.

ALBERT MOREY STURTEVANT, Assistant Professor of German.

A. B. Harvard, 1899; A. M. Harvard, 1901; Ph. D. Harvard, 1905. Instructor in German, 1908-10. Present position, 1910.

GEORGE NATHANIEL WATSON, Assistant Professor of Pharmacy, in charge of Drug Laboratory.

A. B. Michigan, 1904; B. S. Michigan, 1908; Ph. C. Michigan, 1908. Instructor in Pharmacy, 1909-10. Present position, 1910.

LULU GARDNER,⁷ Assistant Professor of Rhetoric.

A. B. Kansas, 1905. Instructor in Rhetoric, Kansas, 1905-09. Present position, 1910.

EDWARD PARK HALL, Assistant Professor of Otorhinolaryngology.

M. D. Ensworth Medical, 1897. Present position, 1911.

HERBERT E. JORDAN, Assistant Professor of Mathematics.

A. B. McMaster, 1900; A. M. McMaster, 1901; Ph. D. Chicago, 1904. Instructor in Mathematics, Brandon College, 1904-06; Instructor in Mathematics and Physics, Michigan College of Mines, 1906-11. Present position, 1911.

WILLIAM REES B. ROBERTSON, Assistant Professor of Zoölogy.

A. B. Kansas, 1906; A. M. Kansas, 1907; Ph. D. Harvard, 1915. Instructor in Zoölogy, Kansas, 1907-09. Present position, 1912.

WALTER STERRITT LONG, Assistant Professor of Chemistry, in charge of Food Laboratory.

A. B. Ohio Wesleyan, 1905; A. M. Ohio Wesleyan, 1908. Assistant in Chemistry, 1911-12. Present position, 1913.

6. Absent on leave.

7. Absent on leave.

NADINE NOWLIN, Assistant Professor of Zoölogy.

A. B. Kansas, 1903; A. M. Kansas, 1903. Instructor in Zoölogy, 1906-13. Present position, 1913.

ANNA LOUISE SWEENEY, Assistant Professor of Piano.

Mus. B. Kansas, 1906. Instructor, Kansas, 1909. Present position, 1914.

GRACE MIRIAM CHARLES, Assistant Professor of Botany.

A. B. Oberlin, 1900; A. M. Chicago, 1905; Ph. D. Chicago, 1910. Instructor in Botany, Kansas, 1911-15. Present position, 1915.

JACOB OSCAR JONES, Assistant Professor of Hydraulics.

B. S. Kansas, 1912; M. C. E. Cornell, 1915. Instructor in Civil Engineering, Kansas, 1912-14. Present position, 1915.

JOSEPHINE MAY BURNHAM, Assistant Professor of English.

Ph. B. University of Chicago, 1901; Ph. D. Yale, 1910. Instructor in English, Wellesley College, 1902-12; Associate Professor of English, Wellesley College, 1912. Present position, 1915.

FRANK EDGAR MELVIN, Assistant Professor of Modern European History.

A. B. Kansas, 1906; A. M. Kansas, 1909; Ph. D. Pennsylvania, 1913. Assistant in History, Illinois, 1909-12; Lecturer in History, Pennsylvania, 1913-15; Assistant Professor of Modern European History, Cornell, 1915-16. Present position, 1916.

ROSE RUTH MORGAN, Assistant Professor of Rhetoric.

A. B. Kansas, 1894; A. M. Kansas, 1905; Instructor in Rhetoric, 1910-16. Present position, 1916.

AMIDA STANTON, Assistant Professor of Romance Languages.

A. B. Kansas, 1904; A. M. Kansas, 1910. Instructor in Romance Languages, 1910-16. Present position, 1916.

HELEN GAILE JONES,⁸ Assistant Professor of German.

Ph. B. De Pauw, 1900; A. M. Kansas, 1914. Instructor in German, Kansas, 1910-16. Present position, 1916.

JOHN JEFFERSON WHEELER, Assistant Professor of Mathematics.

A. B. Indiana, 1905; A. M. Kansas, 1913. Professor of Mathematics, Friends, 1905-11; Instructor in Mathematics, Kansas, 1911-16. Present position, 1916.

SAMUEL ORRICK RICE,⁹ Director of Publicity and Assistant Professor of Journalism.

Present position, 1916.

MAY GARDNER, Assistant Professor of Hispanic Languages.

A. B. Kansas, 1897. Instructor in Romance Languages, Kansas, 1909-17. Present position, 1917.

HELEN MAUDE CLARKE, Assistant Professor in Correspondence Study.

A. B. Kansas, 1903; A. M. Kansas, 1907; Ph. D. Cornell, 1910. Instructor in Correspondence Study, Kansas, 1910-17. Present position, 1917.

DONALD RAY BLACK, Assistant Professor of Pathology.

A. B. Kansas, 1914; M. D. Kansas, 1916. Interne, Bell Memorial Hospital. Present position, 1917.

CLARENCE ESTES, Assistant Professor of Chemistry.

B. S. in Chemical Engineering, Missouri, 1908. Chemical Engineer, Missouri, 1909; Instructor, Iowa, 1909-12. Analyst in Food Laboratory, 1914-17. Present position, 1917.

HERBERT F. VANORDEN, Assistant Professor of Gynecology and Obstetrics.

Ph. B. Yale, 1907; M. D. Johns Hopkins, 1910. Instructor in Gynecology and Obstetrics, Kansas, 1915-17. Present position, 1917.

8. Absent on leave.

9. Resigned, February, 1920.

FRANCIS MONTGOMERY VEATCH,¹⁰ Assistant Professor of Sanitary Engineering.

B. S. Kansas, 1914. Chemical Research Assistant, Kansas, 1914-16. Present position, 1917.

MAXWELL FERGUSON, Assistant Professor of Economics and Commerce.

A. B. Harvard, 1908; A. M. Columbia, 1909; LL. B. Columbia, 1911. Instructor in Economics, Leipzig, Germany, 1911-12; Instructor in Economics, Hamilton, 1913; Instructor in Economics, Vassar, 1916-17. Present position, 1917.

CHARLES CLAYTON DENNIE, Assistant Professor of Dermatology.

B. S. Baker, 1908; M. D. Kansas, 1912. Present position, 1917.

RAY QUINCEY BREWSTER, Assistant Professor of Chemistry.

A. B. Ottawa, 1914; A. M. Kansas, 1915. Assistant Instructor in Chemistry, 1915-17; Instructor in Chemistry, Kansas, 1917-18. Present position, 1918.

CHARLES HOYT WATSON, Assistant Professor of the Teaching of Physical Sciences.

A. B. Kansas, 1918. Present position, 1918.

ROBERT GEORGES MAHIEU, Assistant Professor of Romance Languages.

Ecole Secondaire Notre Dame, LaFlèche (Sarthe); A. B. University of Paris, 1915. Instructor Ecole Secondaire, Notre Dame (St. Calais), 1913-15; Ecole Ste. Croix, Le Mans, 1915-16; Ecole St. Charles (Jurisy), 1916-18. Present position, 1918.

HERMAN BLANEY CHUBB, Assistant Professor of Political Science.

A. B. George Washington, 1912; A. M. Columbia, 1913. Lecturer, George Washington, 1916-17; Research Assistant, Library of Congress, 1913-17. Present position, 1918.

HOWARD MCKEE ELSEY, Assistant Professor of Chemistry.

A. B. Stanford, 1914; A. M. Stanford, 1915. Present position, 1918.

EDGAR WERTHEIM, Assistant Professor of Chemistry.

B. S. Northwestern, 1918. Present position, 1918.

CHARLES EUGENE JOHNSON, Assistant Professor of Zoölogy.

A. B. Minnesota, 1906; A. M. Minnesota, 1907; Ph. D. Minnesota, 1912. Assistant in Zoölogy and Comparative Anatomy, Minnesota, 1907-12; Instructor, Minnesota, 1912-18. Present position, 1918.

ELIZABETH CAMPBELL MEGUIAR, Assistant Professor of Home Economics.

Certificate, University of Chicago, 1910. Instructor, State College of Pennsylvania, 1910-13, University of Chicago, 1913 (Summer), University of Texas, 1914-17; Instructor in Home Economics, Kansas, 1917-18. Present position, 1918.

SAM EARL ROBERTS, Assistant Professor of Otorhinolaryngology.

M. D. Kansas, 1911. Present position, 1918.

WALTER BLAINE BODENHAFFER, Assistant Professor of Sociology.

A. B. Indiana, 1911; LL. B. Indiana, 1912; A. M. Kansas, 1915. Instructor in Sociology, Kansas, 1915-19. Present position, 1919.

ALBERT AUGUSTUS LONG, Secretary of Municipal Reference Bureau.

A. B. Texas, 1918. Assistant, Bureau of Municipal Reference, Texas, 1917-18; Secretary, Bureau of Municipal Reference, Texas, 1918-19. Present position, 1919.

JENS PETER JENSEN, Assistant Professor of Economics and Commerce.

A. B. Dakota Wesleyan, 1913; A. M. Minnesota, 1917. Instructor, Chicago, 1919. Present position, 1919.

FLOYD ELBA ROWLAND, Assistant Professor of Chemistry.

B. S. Oregon Agricultural College, 1907; A. B. Illinois, 1914; A. M. Illinois, 1915; Ph. D. Illinois, 1918. Present position, 1919.

10. Resigned, December 1, 1919.

ALICE WINSTON, Assistant Professor of Rhetoric.

A. B. Chicago, 1898; A. M. Chicago, 1903. Instructor in Rhetoric, Kansas, 1909-19. Present position, 1919.

JOSE MARIA OSMA, Assistant Professor of Hispanic Languages.

College des Freres des Ecoles Chretiennes, Escuela de Bellas Artes, Barcelona, Spain; Ecole des Beaux Arts and Academie Vitty, Paris. Instructor, Colegio Superior de Sonoritas, 1910-13; Colegio Superior de Senoritas y Seccion Normal, 1913-17; Liceo de Costa Rica, 1913-17. Instructor in Romance Languages, Kansas, 1917-18. Instructor in Hispanic Languages, Kansas, 1918-19. Present position, 1919.

ADRIAN HOBART LINDSEY, Assistant Professor of Physical Education.

Present position, 1919.

ELIZABETH FAULKNER, Assistant Professor of the Teaching of English.

B. S. Missouri, 1907; A. B. Missouri, 1909; A. M. Columbia, 1919. Instructor, State Teachers College, Springfield, Missouri, 1908-19. Present position, 1919.

ANDREW J. NEWMAN, Assistant Professor of Economics and Commerce.

A. B. Washington University, St. Louis, 1910; A. M. Missouri, 1911. Assistant in Economics, Leland Stanford, Jr., University, 1916. Present position, 1919.

JOSEPH EDWARD WELKER, Assistant Professor of Pharmacology.

B. S. Clarkson School of Technology, 1913; M. of C. E. Harvard Graduate School of Applied Sciences, 1914. Assistant Professor of Sanitary Engineering, Kansas, 1914-17; Chemist of Water and Sewage Laboratory, Kansas, 1917-18; Assistant Professor of Physiology, Kansas, 1918-19. Present position, 1919.

JOHN ADLUM DENT, Assistant Professor of Mechanical Engineering.

M. E. Lehigh, 1905. Instructor, Illinois, 1910-13; Associate, Illinois, 1913-17. Present position, 1919.

LAFORCE BAILEY, Assistant Professor of Design.

B. S. in Architecture, Illinois, 1915; M. S. in Architecture, Illinois, 1916. Assistant Instructor in Architecture, Kansas, 1916-17; Instructor in Architecture, Kansas, 1917-19. Present position, 1919.

KARL A. SCHLADEMAN, Assistant Professor of Physical Education.

A. B. De Pauw, 1911. Athletic Director, Missouri Wesleyan, 1911-12; Track Coach, De Pauw, 1914; Track Coach, Arizona, 1916; Athletic Director, Baker University, 1916-19. Present position, 1919.

VIOLA JENNIE ANDERSON, Assistant Professor of Home Economics.

B. S. Simmons, 1912; M. S. Simmons, 1916. Instructor Margaret Morrison Institute, 1912-1915; Instructor, Illinois, 1916-1919. Present position, 1919.

DANIEL HOOKER SPENCER, Assistant Professor of Pharmacy.

A. B. Kansas, 1893; B. S. in Medicine, Kansas, 1900; Ph. C. Kansas, 1897. Assistant in Pharmacy, Kansas, 1897-1903. Present position, 1919.

FRANK LESLIE FLEENER, Assistant Professor of Geology.

A. B. Denison, 1912; A. M. Illinois, 1914. Assistant in Geology, Denison, 1910-12; Instructor, Illinois, 1912-14. Present position, 1919.

JOSE MARIA ALBALADEJO, Assistant Professor in Hispanic Languages.

Bachiller, Institute Cardenal Cisneros, Madrid, 1909. Instructor, Indiana University, 1916-18; Instructor, Kansas, 1918-19. Present position, 1919.

NATHAN FRASER STRACHAN, Assistant Professor of Sanitary Engineering.

B. S. Kansas, 1915. Instructor in Sanitary Engineering, and Assistant Engineer of ing State Board of Health, Kansas, 1916-19. Present position, 1919.

THOMAS JENKINS SMART, Assistant Professor of Education, Extension Division, and Community Adviser.

A. B. Minnesota, 1914; A. M. Minnesota, 1918. Instructor, Minnesota, 1914-16; Instructor, Minnesota State Normal, 1917; Assistant Professor, State College of Agriculture, N. Dakota, 1917-19. Present position, 1919.

CARLOS ISAAC REED, Assistant Professor of Physiology.

A. B. Ohio, 1915. Laboratory Assistant, Ohio, 1911-13; Assistant, Ohio, 1913-16; Instructor, Ohio, 1916-19. Present position, 1919.

NELSE FREDERICK OCKERBLAD, Assistant Professor of Surgery, Genito-urinary Diseases.

B. S. Hanover, 1914; M. D. Kansas, 1916. Assistant in Surgery, Kansas, 1918-19. Present position, 1919.

HUBERT SHEPPARD, Assistant Professor of Anatomy.

A. B. Oklahoma, 1917; A. M. Oklahoma, 1917; Ph. D. Cornell, 1919. Instructor in Psychology, Kansas, 1918; Instructor in Psychology, Cornell, 1918-19; Instructor in Psychology, Cornell, Summer Term, 1919; Instructor in Anatomy, Kansas, first semester, 1919. Present position, 1920 (second semester).

ALFRED HENRY WIETERS, Assistant Professor of Civil Engineering, and Assistant Engineer, State Board of Health.

B. S. in C. E. Kansas, 1917. Present position, 1920 (second semester).

WILLIAM ADELBERT DILL, Assistant Professor of Journalism.

A. B. Oregon, 1908. Instructor in Journalism, Kansas, 1917-19. Present position, 1920 (second semester).

INSTRUCTORS.**LALIA VIOLA WALLING, Instructor in Physiology.**

A. B., A. M. Kansas, 1907. Present position, 1908.

ESTHER WILSON, Instructor in English.

A. B. Kansas, 1901; A. M. Kansas, 1902. Instructor in German, Kansas, 1908-18. Present position, 1918.

MARIA LEVERING BENSON, Instructor in Design and Ceramics.

Graduate, Newcomb Art School. Present position, 1909.

SARA GRANT LAIRD, Instructor in Rhetoric.

A. B. Oberlin, 1904; A. M. Columbia, 1912. Present position, 1912.

MYRTLE GREENFIELD,¹¹ Bacteriologist of State Water and Sewage Laboratory.

A. B. Kansas, 1911; A. M. Kansas, 1912. Present position, 1912.

MAUD MILLER, Instructor in Piano.

Mus. B. Kansas, 1898. Present position, 1904.

CORA IRENE REYNOLDS, Instructor in Voice.

Mus. B. Kansas, 1912. Present position, 1913.

HELEN RHODA HOOPES, Instructor in Rhetoric.

A. B. Kansas, 1913; A. M. Kansas, 1914. Present position, 1914.

CAROLINE BAUMANN SPANGLER, Instructor in Rhetoric.

B. D. Kansas, 1881; A. B. Kansas, 1883. Instructor in German, Kansas 1914-19. Present position, 1919.

WILLARD AUSTIN WATTLES, Instructor in Rhetoric.

A. B. Kansas, 1909; A. M. Kansas, 1911. Instructor in English, Massachusetts Agricultural College, 1911-14. Present position, 1914.

ESTHER LYDIA SWENSON, Instructor in Rhetoric.

A. B. Minnesota, 1911; A. M. Minnesota, 1914. Present position, 1914.

HAZEL KATHERINE ALLEN,¹² Instructor in Home Economics.

Ph. B. Chicago, 1913. Present position, 1914.

11. Resigned, February, 1920.

12. Absent on leave.

HAZEL HELEN PRATT, Instructor in Physical Education.

A. B. Ohio State, 1914; Graduate, Harvard School of Physical Education, 1915. Physical Director, Western College for Women, Oxford, Ohio, 1914-15. Present position, 1915.

OSCAR ROCKLUND, Instructor in Machine Construction and Superintendent of Fowler Shops.

Instructor in Machine Construction, 1913-19. Present position, 1919.

PAUL BOWEN LAWSON, Instructor in Entomology.

B. S. Oskaloosa, 1909; M. S. Kansas, 1917; Ph. D. Kansas, 1919. Present position, 1916.

EMILY VICTORIA BERGER, Instructor in Chemistry.

A. B. Kansas, 1914. Assistant Instructor in Chemistry, 1916-17. Present position, 1917.

AGNES ANDERSON MURRAY, Instructor in Chemistry.

A. B. Baker, 1909; A. M. Kansas, 1911. Analyst in Food Laboratory, Kansas, 1911-15. Present position, 1917.

ELBERT LEE TREECE, Instructor in Bacteriology.

B. S. Kansas, 1916. Present position, 1917.

CORNELIA MITCHELL DOWNS, Instructor in Bacteriology.

B. S. Kansas, 1916. Present position, 1917.

HARRY ALLAN FORNEY, Instructor in Machine Construction.

Present position, 1917.

GORDON LAFAYETTE CRAM, Instructor in Romance Languages.

A. B. (Honors) University of Toronto, 1894; A. M. Columbia University, 1904. Professor of Romance Languages, Kenyon College, 1914-15; Dickinson College, 1916-17. Present position, 1917.

WILLIAM BYRON BROWN,¹³ Instructor in Journalism and Superintendent of Printing Plant.

Assistant Instructor in Journalism, Kansas, 1913-18. Present position, 1918.

ANNA MARM, Instructor in Mathematics.

A. B. Bethany College, 1909; A. M. Kansas, 1918. Present position, 1918.

FLORENCE BLACK, Instructor in Mathematics.

A. B. Kansas, 1913. Present position, 1918.

HENRY ARTHUR SHINN, Instructor in Public Speaking and University Marshal.

A. B. Kansas, 1916. Present position, 1918.

MINERVA C. HALL, Instructor in Public School Music.

New England Conservatory, 1904; American Institute of Normal Methods, Northwestern, 1907. Instructor in Music, Illinois State Normal, 1914-16; Director High School Music and Instructor in Public School Music, Washburn, 1916-18. Present position, 1918.

ARTHUR REED BAILEY, Instructor in Machine Construction.

Present position, 1918.

JOHN AMBROSE HESS, Instructor in Romance Languages.

A. B. Kansas, 1908; A. M. Kansas, 1910. Instructor in German, Kansas, 1909-10; Instructor in German, Indiana, 1910-15; Assistant Professor of German, Indiana, 1915-18. Present position, 1918.

ALBERT CHARLES RUTHERFORD, Instructor in Machine Construction.

Present position, 1918.

13. Absent on leave.

NELLIE BARNES, Instructor in Rhetoric.

A. B. Kansas, 1916. Present position, 1918.

EDWARD C. PERRY, Instructor in Romance Languages.

A. B. Yale, 1905. Oahu College, Honolulu, 1901. Present position, 1918.

JUSTICE NEALE CARMAN, Instructor in Romance Languages.

A. B. Kansas, 1917. Present position, 1918.

ADELAIDE STEGER, Instructor in Physical Education.

A. B. Arizona, 1918. Present position, 1918.

MARION LEWIS, Instructor in Journalism.

Present position, 1918.

E. AMBROSE WHITE, Custodian and Instructor in Chemistry.

M. S. Kansas, 1909. Present position, 1918.

CLIFFORD C. NESSELRODE, Instructor in Surgical Anatomy.

M. D. Kansas, 1906. Present position, 1905.

JOSEPH L. McDERMOTT, Instructor in Roentgen Therapy.

M. D. Kansas, 1907. Present position, 1914.

LAURENCE A. LYNCH, Instructor in Medicine.

M. D. Creighton, 1914. Present position, 1918.

JOSEPH B. COWHERD, Instructor in Medicine.

M. D. —, 19—. Present position, 1918.

HARVEY P. BOUGHNOU, Instructor in Medicine.

M. D. —, 19—. Present position, 1918.

WILSON A. MYERS, Instructor in Medicine.

M. D. —, 19—. Present position, 1918.

JAMES BERNARD McNAUGHT, Instructor in Bacteriology.

A. B. Kansas, 1917; A. M. Kansas, 1917. Present position, 1919.

CARL A. SWANSON, Instructor in Romance Languages.

A. B. Kansas, 1917. Present position, 1919.

CORNELIUS GOUWENS, Instructor in Mathematics.

B. S. Northwestern, 1910; A. M. Illinois, 1911. Instructor, Bennett Academy, 1911-12; Instructor, Iowa U., 1912-16. Present position, 1919.

FLORENCE MARILLA CATE, Instructor in Romance Languages.

Ph. B. Morningside Col., Iowa, 1902; A. M. Michigan, 1912. Professor, Latin, Southwestern, 1906-15; Professor, Latin and Romance Languages, Southwestern, 1915-19. Present position, 1919.

GUSTAVE FREDERIC SODERLUND, Instructor in Piano and Organ.

Pupil R. Anderson, Stockholm, 1903; A. Allin, Aarhus, 1904; Alberto Jonas, 1916; Theory with E. Akerberg, Stockholm, 1904; Director, Conservatory of Music, Valparaiso, Chile, 1910-15. Instructor in Piano, Ft. Hays Normal, 1918-19. Present position, 1919.

SEVERIEN Z. HERB, Instructor in Band Instruments and Director of University Band.

First chair, Bass, Innes' Band, four seasons, 1901-04; Brooke's Chicago Marine Band, 1905-07; Weil's St. Louis World's Fair Band, 1907-08; Director, Kansas State Reformatory Band, 1908-18; Director Fourth Infantry Band, Fairfield, Iowa, 1919. Present position, 1919.

ARTHUR GROVER BYRNS, Instructor in Hispanic Languages.

B. S. Purdue, 1898. Instructor, French and Spanish, Belt's Academy, Connecticut, 1907-08. Present position, 1919.

AGNES MARIE BRADY, Instructor in Hispanic Languages.

A. B. Kansas, 1918. Assistant Instructor, Kansas, third quarter, 1918-19. Present position, 1919.

JESSIE ALICE CLINE, Instructor in Home Economics.

B. S. in Education, Missouri, 1915; A. B. Missouri, 1916; Graduate Assistant, Missouri, 1916; Research Assistant, Missouri, 1918 (Summer). Instructor, Missouri, 1919 (Summer). Present position, 1919.

ORA LOUELLA WEBB, Instructor in Home Economics.

A. B. Kansas, 1919. Present position, 1919.

ELIZABETH KLINE STARK, Instructor in Psychology.

A. B. Bryn Mawr, 1916; A. M. Bryn Mawr, 1918. Assistant Demonstrator in Psychology, Bryn Mawr, 1916-18; Professor of Psychology, Oxford, Ohio, 1918-19. Present position, 1919.

BEATRICE MCKINLEY, Technician in Pathology and Bacteriology.

A. B. Fairmount, 1914. Present position, 1919.

VIRGIL W. MCCARTY, Instructor in Otorhinolaryngology.

A. B. Kansas, 1909; M. D. Kansas, 1912. Assistant in Otorhinolaryngology, Kansas, 1918-19. Present position, 1919.

JOHN WILLIAM DAWSON, Instructor in Architectural Engineering.

Present position, 1919.

HAZEL MACGREGOR RICE, Instructor in Mathematics.

A. B. Yankton College, 1906; A. M. University of Illinois, 1909. Instructor in Mathematics, Kansas, 1911-14; 1917-18. Present position, 1919.

NATHAN HARLAN HUFFMAN, Instructor in Hispanic Languages.

A. B. Kansas, 1919. Present position, 1919.

GEORGIA TUCKER, Technician, Dispensary Laboratory.

Present position, 1919.

NANA D' ALBALADEJO, Instructor in Hispanic Languages.

Hillsboro (Ohio) Normal, 1900-01. Instructor, Porto Rico, 1904-05; Instructor, Spain, 1913-14. Present position, 1919.

BEN ELI BROWN, Instructor in Physics.

A. B. Kansas, 1917. Present position, 1919.

WALTER HALL, Chemist, Water and Sewage Laboratory.

Present position, 1919.

CYRIL ARTHUR NELSON, Instructor in Mathematics.

A. B. Midland, 1914; A. M. Kansas, 1916; Ph. D. Chicago, 1919. Present position, third quarter, 1918-19.

JOHN CHESTER WARNER, Instructor in Physics.

A. B. Washburn, 1917. Present position, 1919.

PAUL M. KRALL, Instructor in Medicine.

M. D. St. Louis U., 1912. Present position, 1919.

WARREN RANDOLPH NEUMANN, Instructor in Electrical Engineering.

B. S. in E. E., Kansas, 1918. Present position, 1920 (second semester).

ROY TOWNE, Instructor in Romance Languages.

A. B. Brown, 1905; A. M. Brown, 1910. Professor of Greek, Hamline, 1909-15; Professor of Greek and Latin, Washburn, 1915-19. Present position, 1920 (second semester).

MORA MORELAND PECK, Instructor in Harp.

Pupil of Carlos Salzedo. Instructor in Harp, Kansas City Conservatory of Music, 1916-20. Present position, 1920 (second semester).

CHARLES VERNON KETTERING, Instructor in Voice and Sight Singing.

Instructor in Music, Miltonvale College, 1916-19. Present position, 1920 (second semester).

EARL POTTER, Instructor in Journalism and Director of Publicity.

A. B. Kansas, 1913. Present position, 1920 (second semester).

CARL ERIC SAMUEL STREM, Instructor in Biological Chemistry.

A. B. Whittier, 1917. Instructor in Chemistry, Illinois, 1918-19. Present position, 1920 (second semester).

ASSISTANT INSTRUCTORS.

LARRY M. PEACE, Preparator and Demonstrator in the Botanical Laboratory.

A. B. Kansas, 1901; A. M. Kansas, 1906. Present position, 1902.

HANDEL T. MARTIN, Assistant Curator of Paleontology.

Present position, 1907.

CHARLES D. BUNKER, Assistant Curator of Mammals, Birds and Fishes.

A. B. Kansas, 1901; A. M. Kansas, 1906. Present position, 1907.

BESSIE DOUTHITT, Assistant Instructor in Zoölogy.

Present position, 1917.

EDGAR E. PICKENS, Assistant in Ophthalmology.

M. D. Nashville, 1901. Present position, 1917.

FRED CROSBY RUMSEY, Assistant in Surgery.

M. D. Kansas, 1909. Present position, 1918.

JOHN LLEWELLYN MYERS, Dispensary Attendant.

A. B. Park College, 1901; M. D. Kansas City College of Physicians and Surgeons, 1904. Present position, 1918.

ADA G. EHRMAN, Assistant in Operating Room.

Present position, 1918.

KATE NOBLE, Assistant in the Dispensary.

R. N. Kansas, 1915. Present position, 1918.

WILLIAM FREDERICK LANGE,* Assistant Instructor in Chemistry.

B. S. in Education, Missouri, 1916. Instructor, Kansas, 1918-19. Present position, 1919.

ROBERT MURRAY ISENBERGER, Demonstrator in Physiology.

A. B. Kansas, 1918. Present position, 1919.

JOHN VAN HOESSEN CHALLISS, Assistant Instructor in Chemistry.

A. B. Kansas, 1917. Present position, 1919.

JAMES BLAINE RAMSEY, Assistant Instructor in Chemistry.

A. B. Kansas, 1916. Present position, 1919.

JOHN HERMAN KORB, Assistant Instructor in Physiology.

B. S. Kansas, 1920. Present position, 1919.

EDWIN LEE WHITE, Assistant Instructor in Engineering Drawing.

Present position, 1919.

JOHN JAY JAKOWSKY, Assistant Instructor in Engineering Drawing.

Present position, 1919.

* Resigned, February 1, 1920.

- JACK HOLMES WAGGONER**, Assistant Chemist, State Chemical Research.
Present position, 1918.
- WARREN EUGENE BLAZIER**, Assistant Instructor in Electrical Engineering.
Present position, 1919.
- HOWARD DODGE HUFFMAN BROWN**, Assistant Instructor in Anatomy.
A. B. Kansas, 1919. Present position, 1919.
- LEWIS CHANDLER FOSTER**, Assistant Instructor in Anatomy.
A. B. Kansas, 1919. Present position, 1919.
- JAMES RALPH FOSTER**, Assistant Instructor in Rhetoric.
A. B. Drury, 1913; A. M. Kansas, 1916. Present position, 1919.
- MYRA HULL**, Assistant Instructor in Rhetoric.
A. B. Kansas, 1919. Present position, 1919.
- IVAN VIRGIL SNYDER**,¹⁴ Assistant Instructor in French.
Teacher's diploma, University of Poitiers, 1919. Present position, 1919.
- HENRY NATHANIEL STONE**, Technician in Anatomy.
Present position, 1919.
- GRACE O. SCOTT**, X-ray Nurse.
R. N. Kansas, 1915. Present position, 1919.
- ERMA ANITA SMITH**, Assistant Instructor in Physiology.
Present position, 1919.
- MAYME WHEELER**,* Assistant Instructor in Rhetoric.
A. B. Kansas, 1912. Present position, 1919.
- HERBERT ALEXANDER BARNBY**, Assistant in Coal Laboratory, State Chemical Research.
Present position, 1919.
- MARY LENORE BICKNELL**, Assistant Instructor in Zoölogy.
A. B. De Pauw, 1919. Present position, 1919.
- WILLIAM EDWIN HOFFMANN**, Assistant Curator in Entomology.
A. B. Kansas, 1918. Present position, 1919.
- EVA BATCHMAN**, Assistant Instructor in Entomology.
A. B. Kansas, 1919. Present position, 1919.
- RALPH MULVANEY BUFFINGTON**, Assistant Instructor in Chemistry.
A. B. Kansas, 1918. Present position, 1919.
- FRANK ARTHUR PATTY**, Laboratory Assistant, Food Analysis, State Chemical Research.
Present position, 1919 (second semester).
- RUSSELL LEFFERD**, Assistant Instructor in Machine Construction.
Present position, 1919 (second semester).
- KENNETH PRINGLE**, Assistant Instructor in Rhetoric.
A. B. Kansas, 1916. Present position, 1920 (second semester).

* First semester.

14. Resigned, February, 1920.

THE UNIVERSITY.

The University embraces the following schools and divisions:

THE GRADUATE SCHOOL.
THE COLLEGE OF LIBERAL ARTS AND SCIENCES.
THE SCHOOL OF ENGINEERING
THE SCHOOL OF FINE ARTS.
THE SCHOOL OF LAW.
THE SCHOOL OF PHARMACY.
THE SCHOOL OF MEDICINE.
THE SCHOOL OF EDUCATION.
THE SUMMER SESSION DIVISION.
THE UNIVERSITY EXTENSION DIVISION.
THE RESERVE OFFICERS' TRAINING CORPS.
THE DIVISION OF ATHLETICS.
THE DIVISION OF LIBRARIES.
THE DIVISION OF MUSEUMS.
THE DIVISION OF PUBLICATIONS.
THE DIVISION OF STATE SERVICE WORK.
THE DIVISION OF UNIVERSITY SURVEYS.
THE DIVISION OF VOCATIONS.

THE SCHOOLS.

THE GRADUATE SCHOOL.¹

The Graduate School is open to those holding a bachelor's degree from an institution of recognized standing.

The School confers the following advanced degrees: Doctor of philosophy, master of arts, master of science, civil engineer, mechanical engineer, engineer of mines, chemical engineer, and electrical engineer. Students who take the master's degree in the minimum period of one year must be fully prepared to do graduate work; those who are not so prepared find it necessary to take a longer time. The degree of doctor of philosophy may be given after three years of resident graduate work, the last year, at least, being spent at the University of Kansas. Graduates of engineering in this University and masters of science who majored in engineering in the Graduate School may become candidates for professional engineering degrees after three years of professional service.

For the encouragement of higher education, seventeen University fellowships are given to students who have excelled in undergraduate work, and ten fellowships are provided for graduates of Kansas colleges.

1. Detailed information will be found in Section II.

THE COLLEGE OF LIBERAL ARTS AND SCIENCES.²

The College of Liberal Arts and Sciences offers a four-year curriculum, based upon a four-year high-school course and leading to the bachelor's degree. It includes courses offered by the following departments:

Bacteriology.	Latin Language and Literature.
Botany.	Mathematics.
Chemistry.	Music.
Design.	Philosophy and Psychology.
Economics and Commerce.	Physical Education.
English Language and Literature.	Physics and Astronomy.
Entomology.	Physiology.
Geology and Mineralogy.	Political Science.
Germanic Languages and Literatures.	Public Speaking.
Greek Language and Literature.	Romance Languages and Literatures.
History.	Sociology.
Home Economics.	Zoölogy.
Journalism.	

While the courses are largely elective, the requirements governing election have been made with a view to securing a well-rounded program as well as a reasonable degree of specialization.

The purpose of the College is to provide a liberal education; but College students who intend to become candidates for professional degrees may elect certain courses in some of the professional schools.

THE SCHOOL OF ENGINEERING.³

Opportunities for study are offered to high-school graduates who wish to fit themselves for the technical branches of industrial work. The lines of study as they are formulated are under the usual engineering titles, as follows:

Civil Engineering, pertaining mainly to transportation, to design and construction of bridges and public works, to municipal and sanitary problems, and to government work in the survey of lands, in irrigation projects, etc.

Electrical Engineering, pertaining mainly to design, manufacture and operation of electric-power generating machinery, telephone apparatus and electrical instruments, and public utilities plants where such equipment is employed.

Mechanical Engineering, pertaining mainly to manufacturing processes and the plants for carrying on those processes, with especial attention given to the design and construction of machinery. Steam, gas, and refrigeration engineering are included.

Mining Engineering, School of Mines, emphasizing in equal degree the mining processes for coal and metal production, and the subsequent treatment of ores.

Chemical and Metallurgical Engineering, pertaining mainly to chemical analytical methods and to the great variety of manufacturing processes which have a chemical or metallurgical basis.

2. Detailed information will be found in Section III.

3. Detailed information will be found in Section IV.

Architecture and Architectural Engineering, devoted to architectural design and building construction, emphasis in the option in Architecture being given to principles and methods of design, while the option in Architectural Engineering emphasizes structural methods and materials.

Engineering and Administrative Science, in which economics courses are grouped with engineering fundamentals to form the basis for a business career with transportation or manufacturing enterprises.

The curriculum is prepared in two forms. One is more strictly technical and provides for the completion of the necessary amount of work in four years by those who are prepared to carry heavy work. Many students find it desirable to take more time. The degree given is bachelor of science in ——— engineering or in architecture. The other provides for five full years of work, the first year to be taken in the College of Arts and Sciences. The degree given is bachelor of science. The latter plan is recommended to all recent graduates of high schools.

THE SCHOOL OF FINE ARTS.⁴

The School of Fine Arts is made up of the Department of Music and the Department of Painting. It offers courses in piano, organ, violin, violoncello playing, voice culture, drawing and painting, and public-school music.

The four-year curriculum in music leads to the degree of bachelor of music; in painting, to the degree of bachelor of painting. An artist's certificate is given on completion of a four-year special curriculum in piano, organ, violin, violoncello or voice culture. A teacher's certificate is given on completion of a three-year curriculum in the same subjects. A teacher's certificate is also given on completion of the two-year special curriculum in public-school music or in public-school drawing. On completion of the two latter curricula the State Board of Education will grant a special state certificate entitling the holder to teach music or drawing in any of the graded or high schools of the state.

THE SCHOOL OF LAW.⁵

The School of Law offers three years of legal instruction leading to the degree of bachelor of law. One year of college work in addition to graduation from an accredited high school is required for admission.

The object of the School is to teach the principles of the common law and to furnish a course of legal instruction that shall prepare the student to deal with legal problems and to practice in any state in the Union.

Provision is also made to give those who do not expect to practice law, but who desire a knowledge of certain branches of the law for business purposes, such instruction as may be best fitted to their needs.

THE SCHOOL OF PHARMACY.⁶

The School of Pharmacy is organized to give instruction and practical training in all branches connected with the pharmaceutical profession.

4. Detailed information will be found in Section V.

5. Detailed information will be found in Section VI.

6. Detailed information will be found in Section VII.

The work is open to graduates of accredited high schools and to students having an equivalent preliminary education.

Three complete curricula are offered: a two-year curriculum leading to the degree of graduate in pharmacy, a three-year curriculum leading to the degree of pharmaceutical chemist, and a four-year curriculum leading to the degree of bachelor in pharmacy.

Provision is also made for those who desire to pursue special lines of pharmaceutical investigation, regardless of a degree.

Connected with the School is the state laboratory for drug analysis, which affords ample opportunity for those who are preparing for governmental and state work.

THE SCHOOL OF MEDICINE.⁷

The School of Medicine offers a four-year medical curriculum based on two years of college work and leading to the degree of doctor of medicine. The work of the first year and a half is done at Lawrence, in the main laboratories of the University. This work embraces the scientific subjects, or so-called "medical sciences," and forms the basis for the practical work of the last two years. The last two and a half years' work is done at Rosedale, where the Bell Memorial Hospital, owned and conducted by the University of Kansas, is located.

The Training School for Nurses, at the Bell Memorial Hospital in Rosedale, offers a course extending over two and a half years.

THE SCHOOL OF EDUCATION.⁸

The School of Education, in coöperation with other schools of the University, offers curriculums leading to the following positions: (1) instructors of education subjects in colleges and normal schools; (2) public-school superintendents and principals; (3) high-school teachers; (4) specialists in mental and educational measurements. Depending upon the amount of previous academic and professional training of students and the extent of specialization they desire, the curriculums allow variation from a mere satisfaction of the minimum requirements in education set by the State Board of Education for a certificate, to a somewhat specialized preparation leading to a University Teachers' Diploma, or to a highly specialized professional training leading to the degree of B. S. in Education, or to the degree of A. M. or Ph. D. in the Graduate School.

While students do not enroll in education courses ordinarily until the junior year, those intending to enter public-school work at graduation time should plan their freshman and sophomore work in the light of the requirements set forth in the School of Education section of the catalog.

The School of Education maintains a Bureau of School Service to assist public-school officials in the solution of their professional problems.

7. Detailed information will be found in Section VIII.

8. Detailed information will be found in Section IX.

THE DIVISIONS.

SUMMER SESSION.

There are two terms of the Summer Session, of six weeks and four weeks, respectively, each independent of the other in the courses offered. The first term begins immediately after Commencement Day. The second term begins the day after the first term closes.

Most of the work offered in the Summer Session is chosen from the courses given regularly in the various schools, and may be counted toward degrees in the same way as if taken in the regular academic year.

The maximum amount of credit that may be earned in the Summer Session is six hours for the first term and four hours for the second.

UNIVERSITY EXTENSION.¹

Through the Correspondence-study Department the following courses are offered:

First. Regular University studies which may, under approved conditions, be taken for credit toward a degree.

Second. High-school and preparatory studies for those who cannot arrange to attend the established institutions.

Third. Vocational courses, which supply knowledge and training that have a direct bearing upon the advancement and efficiency in given occupations.

Fourth. Advanced courses, designed to help those in professional or practical life to keep in touch with certain advancing conditions of science and knowledge.

Classes under regular University instructors can be offered in a limited number of communities where several desire to take up the same course. All courses offered by the Correspondence-study Department, whether taken for University credit or not, are on a uniform basis with reference to the amount of work covered. Work which is satisfactorily completed has, therefore, a definite value.

ATHLETICS.²

Senate Regulation. The University Senate has adopted rules governing the standing of all those who represent the University in athletic contests. Good scholarship and gentlemanly conduct are required of all such contestants.

Athletic Association. This association is organized to promote and control the intercollegiate athletics of the University of Kansas. The Chancellor is *ex officio* president, and there are five faculty and five student members of the Athletic Board. The athletic director is general manager of athletics. All forms of athletics are under the immediate control of the director and his assistants, who are also members of the faculty.

1. Detailed information will be found in Section XI.

2. Detailed information will be found in Section XIII.

Intramural Athletics. The general athletics of the University include football, baseball, basket-ball, track, tennis, and soccer. Intramural contests are held in all branches.

Intercollegiate Games. The University of Kansas is a member of the Missouri Valley Intercollegiate Athletic Association, and a full schedule of games in football, baseball, basket-ball, track, and tennis is arranged with members of that association and other educational institutions.

LIBRARIES.²

The Libraries of the University contain 132,638 volumes and some 44,000 pamphlets. An annual appropriation of \$18,000 is devoted to the purchase of books. The periodical room receives 1,185 periodicals and publications of learned societies, and 121 newspapers published in Kansas. The Departments of Germanic Languages, Romance Languages, Latin, English, Education, American and European History, Sociology and Economics have special reading rooms in Spooner Library.

Nine departmental libraries are housed in the buildings used by their respective departments or schools, each in charge of an assistant librarian.

The Library of the Kansas Academy of Science, in charge of the secretary of the Academy, is housed in Fraser Hall.

MUSEUMS.²

The scientific collections belonging to the University are grouped according to the teaching department in charge.

The botanical collection contains 10,000 identified and labeled specimens.

The entomological collections comprise about 26,000 species and 300,000 specimens.

Geology is represented by extensive collections of specimens in economic, petrographic and mineralogical groups.

In paleobotany and paleontology the collection is one of the most complete in America.

The zoölogical collections are rich and varied.

The classical museum contains a collection of casts of Greek and Roman sculpture, *facsimile reproductions of objects of art and utility*, original coins, and photographs.

UNIVERSITY PUBLICATIONS.²

The University of Kansas Science Bulletin is maintained by the University as the medium for the publication of the results of original research by members of the University. Two or three volumes are issued in each academic year. The price of subscription is three dollars a volume. Individual numbers vary in price with the cost of publication.

University of Kansas Studies, *Humanistic Series*, is a series devoted to the presentation of the results of research along humanistic lines. The numbers are issued at irregular intervals. Each number is a complete

2. Detailed information will be found in Section XIII.

monograph, and its price varies with the cost of publication. Arrangements for exchange may be made by addressing the University Library.

The **University Geological Survey Bulletins** are issued from time to time as material for them is gathered.

The **University Entomological Bulletins** are reports issued in regular series from time to time, comprising the results of entomological investigations conducted by the University. These deal in part with applied problems of practical value referred to the University by various interests of the state, and in part with fundamental research problems presented by such investigations. These publications will be sent free to any citizen of the state upon application.

The **Bulletin of the Engineering Experiment Station** is the medium through which the results of investigations in engineering lines are published. Numbers are issued at irregular intervals, as material becomes available, usually two or three each year. It is under the direction of an Experiment Station staff. Communications should be addressed to the Director.

STATE SERVICE WORK.³

Entomological Field Work. In conjunction with the State Agricultural College, the University conducts the field work of the State Entomological Commission.

Water Analysis. The University in coöperation with the State Board of Health maintains laboratories for the chemical and bacteriological examination of water. The special purpose of this examination is to assist Kansas communities to secure and preserve safe supplies of water.

Ceramics and Kansas Clays. The University is engaged in the examination of the clays of the state and the determination of their fitness for the fine and useful arts.

State Chemical Research. This division of the Department of Chemistry is engaged in the study of chemical problems in which the industries or the communities of Kansas may be interested.

Food and Drug Analysis. By legislative enactment it is the duty of the University to examine samples of food and drugs for their purity, and report to the State Board of Health.

Weights and Measures. The University has in its custody the sets of standard weights and measures of the state; and the deputy state sealer, who is a member of the faculty, tests weights and measures in the enforcement of the laws governing commercial standards.

Engineering Experiment Station. Numerous investigations and experiments with Kansas building stone, brick and stone paving, the purification of sewage, the properties of coal, natural gas, and oils, the calibration of metering appliances for municipal service, etc., have been conducted and the results published in a series of bulletins.

Bureau of School Service. Technical assistance is rendered to public school officials, upon their request, as far as time and facilities permit.

3. Detailed information will be found in Section XIII.

Examining the general intelligence of children by means of approved intelligence tests, determining the status and progress of children under a given system of instruction by standardized educational tests, and making more or less complete surveys of typical school systems, are the chief services undertaken.

UNIVERSITY SURVEYS.³

Biological Survey. A biological survey of the state is being conducted by the Departments of Botany, Zoölogy, and Entomology. The results are made known in special reports.

Geological Survey. The work of the geological survey is carried on through field expeditions sent out annually. The results thus far have been published in ten volumes, besides bulletins.

VOCATIONS.

A Vocations Division has been organized recently. It will collect information about vocations suitable for University-trained men and women and will make this information available for the use of students and others. It will also encourage research into the possibilities of vocational guidance.

Reserve Officers' Training Corps. A Reserve Officers' Training Corps has been established at the University of Kansas, the purpose of which is to prepare students of the University for appointments as reserve officers in the United States army. Admission to the corps is open to any regularly enrolled student of the University, except that no one in the military or naval service of the United States, or of the several states, is eligible for membership in this corps.

HISTORY.

The idea of a State University in Kansas dates from the early days of Kansas territorial government. Each of the constitutions adopted for the territory of Kansas during the period of its memorable struggle provided for the establishment of an institution of higher learning, to be supported by public funds. The last of these, which became, on the admission of Kansas to the Union, the constitution of the state, declares that "provision shall be made by law for the establishment, at some eligible and central point, of a State University, for the promotion of literature and the arts and sciences."

By an act of Congress approved January 29, 1861, the day on which Kansas was admitted to statehood, seventy-two sections of land were set apart and reserved for the use and support of a State University. The state accepted the trust, and in 1863 the legislature selected the city of Lawrence as the location for the institution. One year later the legislature passed an act organizing the University and giving to it the name of "The University of Kansas." A charter was immediately drawn

3. Detailed information will be found in Section XIII.

up, and the government of the institution was vested in a Board of Regents, appointed by the governor.

The board thus appointed held its first meeting on March 21, 1865, and decided to open a preparatory department as soon as the citizens of Lawrence should provide rooms for that purpose. This the citizens undertook to do, and by the middle of September, 1866, they were enabled, by the aid of gifts from various individuals and organizations, to erect the building known for 46 years (from the erection of Fraser Hall, in 1872, to the demolition of "Old North" itself, in 1918) as North College. The first faculty of the University had been elected by the Board of Regents in July of the same year, and on the 12th of September the University was opened to the young men and women of the state.

In 1876 the legislature of the state established a normal department, which, though successful, was discontinued in 1885. The Law School was opened in October, 1878, and the School of Pharmacy was established in 1885. A course in engineering was arranged as early as 1873, but remained a part of the collegiate department until 1891, when the School of Engineering was organized and the collegiate department became known as the School of Arts. During the same year the preparatory department was discontinued, and the Departments of Music and Art, established in 1877, were combined to form the School of Fine Arts. The Graduate School was organized in 1896; and in 1899 the preparatory medical course, which had been offered in the collegiate department since 1880, was made independent as a School of Medicine, the first two years only being given. In 1905 the clinical departments were added at Rosedale, thus completing a four-year medical course. In 1904 the Board of Regents changed the name of the School of Arts to the College of Liberal Arts and Sciences. The Summer Session Division was established in 1903; the School of Education and the Division of University Extension were established in 1909; the Division of Athletics was established in 1915; the Division of Vocations was established in 1919.

The Rev. R. W. Oliver, the first Chancellor of the University, resigned his position after one year of service, and was succeeded by Gen. John Fraser. In 1874 Dr. James Marvin was made Chancellor. His resignation, in 1883, was followed by the election of Dr. Joshua A. Lippincott, who served until June, 1889, when Mr. W. C. Spangler, a graduate of the University and a member of the Board of Regents, was appointed to act as Chancellor until the election of a regular incumbent. In 1890, Prof. Francis H. Snow, who had been a member of the faculty from the beginning, was elected. When, in 1901, Chancellor Snow resigned on account of failing health, Mr. Spangler again became acting Chancellor, serving until Dr. Frank Strong assumed the office, August 1, 1902.

In 1913 the powers belonging to the Board of Regents passed by legislative act to the State Board of Administration. In 1917 these powers passed to a newly constituted board controlling all state institutions, educational, charitable, and correctional. This board took office July 1, 1917.

The legislature of 1917 passed senate concurrent resolution No. 15, submitting a constitutional amendment for a permanent income for the state educational institutions, authorizing the legislature to levy a per-

manent tax for the use and benefit of the state educational institutions and apportioning among and appropriating the same to the several institutions, the levy, apportionment and appropriation to continue until changed by statute. It was specifically provided that: "Nothing herein contained shall prevent such further appropriation by the legislature as may be deemed necessary from time to time for the needs of certain state educational institutions."

This amendment was carried at the general election in November, 1918, by a very large majority and is construed as a vote of confidence by the state in the educational institutions and as a warrant for their existence and development.

GOVERNMENT.

THE BOARD OF ADMINISTRATION.

By act of the legislature of 1917, the State Board of Administration consists of the Governor, who acts *ex officio* as chairman, three members appointed by the Governor, and a business manager chosen by the board. This board has full power to administer the affairs of the University, subject only to legislative enactments. The term of office is four years.

THE UNIVERSITY SENATE.

The University Senate consists of the Chancellor, the deans and directors of divisions, and all members of the instructional staff having the rank of professor or associate professor. The Senate has jurisdiction over all internal matters involving general University policy. The Chancellor is *ex officio* chairman and executive officer of the Senate.

THE FACULTIES OF THE UNIVERSITY.

The faculty of each school consists of the Chancellor, the Dean, and all professors, associate professors, assistant professors and instructors giving work in that school. It has jurisdiction over all matters which concern primarily its own school. The Chancellor is chairman of each faculty. The Dean of each school is its executive officer.

DEPARTMENTAL FACULTIES.

A departmental staff consists of all members of its instructional force. It has jurisdiction over all matters which concern primarily its own internal policy.

UNIVERSITY DIVISION COMMITTEES.

A university division is a body having relations with more than one of the schools or departments of the University. The divisions are administered by committees, subject to the general regulations of the Senate. Each division has an executive officer, called the Director.

EQUIPMENT.

PROPERTY AND INCOME.

The University owns equipment, buildings, and grounds of an estimated value of \$2,500,000. It receives in normal years about \$70,000 annually from fees and \$7,200 from the land fund. For the biennium of 1919-1921 the state appropriated \$2,034,230, including \$350,000 for buildings.

THE CAMPUS.

The campus, comprising some 160 acres of hill top and hill slope, is of marked natural beauty, and provides for the probable increase of the University in a farsighted way. The buildings follow the curve of the hill and overlook the Kaw river valley to the north and east, and the beautiful Wakarusa valley to the south.

The campus of the Medical School at Rosedale also lies high and is capable of artistic development.

BUILDINGS.

There are twenty-three University buildings, of which sixteen were erected by the state and six by private gift.

Fraser Hall was erected in 1872. Its total cost has been approximately \$182,000, of which one-half was appropriated by the legislature, and one-half contributed by the city of Lawrence. In this building are located the executive offices of the University, including the Chancellor's office and the office of the Registrar; the offices of the Dean of the College, the Alumni Secretary, the Adviser of Women, and the University Extension Division; the offices and recitation rooms of the Departments of English, German, Greek, Latin, Romance Languages and Home Economics, and the School of Education; also, the classical museum. The building is named in honor of Gen. John Fraser, the first active Chancellor of the University.

Medical Hall was erected in 1884, at a cost of \$12,000—\$8,000 from interest on the permanent endowment fund of the University, and \$4,000 appropriated by the legislature. The physiological laboratories are located on the second floor. The basement is occupied by the Department of Journalism.

Snow Hall was erected by the state in 1886, at a cost of \$50,000. In this building are located the laboratories and lecture rooms of the Departments of Bacteriology, Botany, Entomology, Zoölogy and Medical Physiology. The laboratories of the State Water Survey are located in the south side of the basement. The building is named in honor of Prof. Francis Huntington Snow.

The Heating Plant was erected by the state in 1887, at a cost of \$16,000, and after a fire in 1898 was rebuilt and equipped at a cost of \$30,000.

Spooner Library was erected in 1894, at a cost of \$75,000, through the generosity of William B. Spooner, of Boston. On the first or main floor

are located the general reading room, a newspaper room, and the Librarian's and Cataloguer's offices.

The Chancellor's Residence was erected in 1894, at a cost of \$12,000, from the William B. Spooner bequest.

Blake Hall was erected by the state in 1895, at a cost of \$58,000. It is occupied by the Department of Physics and Astronomy. It is named in honor of Prof. Lucien Ira Blake.

Fowler Shops was completed in 1899, at a cost of \$21,000. It was given by Mr. George A. Fowler, of Kansas City, Mo., as a memorial of his father. It is devoted primarily to instruction in shop work.

The Chemistry and Pharmacy Building was completed in 1900, at a cost of \$70,000, appropriated by the legislature. The building is arranged specifically for laboratory purposes for the Departments of Chemistry and Pharmacy.

The Dyche Museum of Natural History, named in honor of Prof. Lewis L. Dyche, was erected by the state in 1902, at a cost of \$75,000. It houses collections in entomology, paleontology, mammals, and birds. Part of the basement is occupied by the Department of Anatomy.

Green Hall, named in honor of Dean James W. Green, was erected by the state in 1905, at a cost of \$65,000. It is occupied by the School of Law and the Department of Public Speaking.

The Robinson Auditorium-Gymnasium was erected by the state in 1905, at a cost of \$100,000. By removing the apparatus, the gymnasium may be transformed into an auditorium with a seating capacity of 3,000. The building is named in honor of Charles Robinson, first governor of Kansas, and his wife, Mrs. Sara T. D. Robinson.

The Eleanor Taylor Bell Memorial Hospital. The first section of the Bell Memorial Hospital, at Rosedale, was erected in 1905, at a cost of \$30,000, on property and by funds given to the University for that purpose by Dr. Simeon B. Bell, of Rosedale, and was named in memory of his wife. In 1911 a second section was built through an appropriation by the legislature of \$50,000. The combined hospital has about seventy-six beds, and is used as a teaching hospital. To it are sent county patients under the indigent poor law, the crippled children law, and the obstetrical service law.

The Clinical Laboratory at Rosedale was erected in 1906, at a cost of \$40,000, on property and by funds furnished by Dr. Simeon B. Bell.

The Service Building, erected by the state in 1908, contains the office of the superintendent of buildings and grounds, and the workmen's shops.

Marvin Hall was erected by the state in 1907, at a cost of about \$90,000. It contains equipment and classrooms for the general work of the School of Engineering. This building is named in honor of Frank O. Marvin, first Dean of the School.

The Power Plant and Mechanical Laboratory was completed in 1909, at a cost of about \$23,000. In the power-plant section are the power-generating machinery for lights and power for the University and the

pumps for the regular water service and fire protection. The laboratory section contains equipment for instruction in technical engineering work.

Haworth Hall was erected by the state in 1909, at a cost of \$50,000. A \$7,500 clay laboratory was added in 1911. This building is named in honor of Erasmus Haworth, professor of geology.

Liberal Arts Building. The east wing of the College of Liberal Arts and Sciences and Administration Building was erected in 1911 by the state, at a cost of \$125,000. It is occupied by the Departments of Economics, History and Political Science, Mathematics, Philosophy, and Sociology, the psychological laboratories occupy the basement, and the Department of Drawing and Painting the third floor.

The legislature of 1917 appropriated \$225,000 for the erection of classrooms in the middle section and west wing. These are occupied by the School of Fine Arts and the Foreign Language Department. The Thayer collection will be housed here.

The Dispensary Building at Rosedale was erected in 1915, at a cost of \$25,000, provided by the legislature.

Oread Training School was erected in 1915, at a cost of \$6,000. This sum was largely a gift of the School.

The Vivarium was built in 1916 from the fund for permanent repairs and improvements.

The Astronomical Observatory was built in 1919 from the fund for permanent repairs and improvements.

The legislature of 1919 appropriated \$150,000 for a Power Plant, and \$200,000 for a hospital building at Rosedale.

UNIVERSITY ORGANIZATIONS.

GENERAL.

The Alumni Association is composed of all persons holding degrees granted by the University, though active membership is limited to those who pay annual dues. An endowment membership is maintained for those who subscribe to the endowment fund. An associate membership is for such former students of the University, not graduates, as pay the associate membership dues. Such former students may also become associate-endowment members. The control of the affairs of the association is in the hands of a board of ten directors. A general secretary is employed, whose office is at the University and who has charge of the publications of the association, and keeps, so far as possible, a complete record of facts concerning the alumni. The secretary is editor of the *Graduate Magazine*, which is sent monthly to all members of the association. The regular meetings of the association occur during commencement week of each year.

The Graduate Club meets once a month. Its interests are social, literary, and scientific. Its aim is to allow graduate students to become acquainted with each other and with each other's work.

University Women's Association. The University Women's Association is composed of the women connected with the University as instructors, librarians, or officials, and the wives of instructors. This organization gives a general reception at the opening of each academic year, maintains a scholarship for women, and in various other ways shows its practical interest in the affairs of the University.

Women's Student Government Association. All women by registration in the University become members of this organization. The purpose of the organization, as stated in the constitution, is "to foster among the women a feeling of mutual responsibility and a high regard for both liberty and order, to maintain high standards of living and scholarship, and to promote loyalty to the University.

The organization has power "to make all rules and regulations necessary to carry out the purpose for which it was organized; to regulate all matters pertaining to the conduct and welfare of women students; to aid and promote all student organizations and activities in which women students are concerned. Through its Executive Council it shall have power to act as a board of arbitration and make all needful regulations in case of trouble or disagreements between individual students or between different schools, classes or organizations, and through its Executive Council it may recommend its findings to the proper University body: Provided, that nothing in this constitution shall be construed so as to conflict with any regulations of any properly constituted University authority."

The officers are a president, two vice presidents, a secretary and a treasurer elected by the women of the University and two representatives from each of the classes. These officers form the Executive Council. There are, in addition, district chairmen and house presidents, elected by the groups of women over whom they preside. These officers meet with the Council at regular periods, assist the Council in various ways, and serve especially to maintain a close bond among the women students.

This organization maintains a scholarship for self-supporting girls, and, in coöperation with its Faculty Advisory Committee and the Adviser of Women, serves in many ways to promote the interests of women students.

The Men's Student Council was instituted by the men students of the University, April 20, 1909. The purpose of the Council is to draw the men of the University into closer relationship, to promote a closer union between the schools, to promote friendly relations between the faculty and the students, to provide for the general welfare of the students, to conduct campaigns for the support of the University, and to reflect the student sentiment in all matters whatsoever of concern to the students of the University.

The Council is composed of members chosen by the male students of the University from their numbers, the following schools being represented: the College, the School of Engineering, the School of Law, the School of Medicine, the School of Pharmacy, and the Graduate School. Each school is represented by one member for each one hundred students or major fraction thereof, but each school is entitled to at least one representative. In addition to the councilmen, there are chosen at each election a president, a vice president, and a secretary; the latter being elected at large by all of the male students of the University.

RELIGIOUS.

Young Men's Christian Association. This organization is interdenominational in character, and at present has a student membership (contributing) of nine hundred and twenty-eight. The various activities of the association are carried on by the members themselves, under a board of directors and a staff of full-time secretaries.

In coöperation with the churches of Lawrence and the Christian and Presbyterian Bible chairs, the association offers a large number of Bible-study courses in charge of University professors and other efficient leaders. Similarly, courses in the study of missions are given.

At present the association occupies quarters in Myers Hall, the Christian Church Bible chair building. It is hoped that soon more adequate quarters may be secured.

The association aims to give all men students opportunity for religious activity in the hope of giving them training for service in Christian and welfare work after graduation. At present the Thursday noon-day luncheon meetings are most popular. Strong out-of-town leaders address these meetings, giving a challenging appeal to clean and right living.

Every fall during the opening week of school, all possible help is given new students in securing rooms and employment; an information bureau assists them with the many problems and questions that arise for new students as they enter the University. A handbook known as the "freshman's Bible," and distributed to all, is a most popular and helpful feature; it contains valuable information for prospective students.

During the year occasional socials and stag mixers, lectures of various kinds and a week's big series of religious meetings invariably are given.

Address all correspondence to the General Secretary, University Y. M. C. A., Lawrence, Kan.

Young Women's Christian Association. This is an organization of 500 University women, with a permanent sustaining membership of over 100 faculty women and alumnæ. The association employs a general secretary. The purpose of the association is fivefold: (1) to develop and deepen the spiritual and moral life of the young women of the University, and to bring to them the conception that no part of their life lies outside of their religion; (2) to be the medium between the women students of the University and the churches of Lawrence; (3) to give practical aid to women students whenever they are in need of it; (4) to be one of the agencies to create the best social standards; (5) to train young women to become efficient workers in church and philanthropic organizations.

Religious services are held weekly, on Tuesday afternoons, at 3, in Myers Hall. During the opening week of the fall term members of the association assist Freshman girls in registering and finding classrooms and rooming and boarding places.

Information concerning employment for girls may be obtained by applying to the general secretary.

The Christian Church Bible Chair. April 1, 1901, the Women's Board of Missions of the Christian Church established a chair of Biblical instruction. Myers Hall, erected at a cost of \$40,000, affords commodious lecture rooms and offices, an assembly room seating five hundred, a library and museum of missions.

There is no organic relation between the Bible chair and the University. The privileges are offered to all students, and the instruction is nonsectarian. The purpose of the work is to give students a more intimate acquaintance with the Bible, and to render them assistance in their religious life.

The courses in the Old and New Testaments include The History of the Jewish People, The Teaching of the Prophets, The Life of Christ, and The Life of Paul. Special courses are also offered in Christian Evidences, Comparative Religions, The Work of Preaching, and other lines of Christian thought and activity, as demanded.

A library of 1,500 volumes on Bible study, missions, religion, Christian sociology, the Sunday school, and related subjects, is accessible to all.

The present occupant of the chair is Arthur Braden, A. B. (Hiram College), graduate of Auburn, N. Y., Theological Seminary, Ph. D. (Syracuse University).

Westminster Association. In 1905, the Presbyterians of Kansas organized Westminster Association for the purpose of offering Biblical instruction to all students and affording pastoral care for Presbyterian students of the University. On October 7, 1910, Westminster Hall, the gift of W. W. Cockins, of Lawrence, was dedicated. The hall is well adapted to class work, and also affords a center for the social life of the students. In September, 1919, Rev. J. W. Boyer, A. B. (Westminster College), B. D. (Theological Seminary, Louisville, Ky.), A. M. (University of Louisville), was elected Presbyterian University pastor.

The following courses are offered: Vital Themes, Church History, The Bible, Practical Christianity, Bird's Eye View of New Testament Books, and The Bible and the Spade.

There is no organic connection with the University. The teaching is nonsectarian and without charge. All students are welcome to the social life of the hall.

All correspondence relative to the work of the Westminster Association should be addressed to Rev. J. W. Boyer, 1221 Oread, Lawrence, Kan.

City Churches. The churches of Lawrence unite in extending to the University students a cordial invitation to enter with them into Christian fellowship, and endeavor to make them feel that, irrespective of church membership, they are welcome to all the privileges which the church affords. To this end the various churches hold receptions for the students at the beginning of each year, the pastors preach special sermons from time to time, and the young people's societies arrange for social gatherings, to which students especially are invited. There are also organized, in the principal Sunday schools of the city, classes for University students, a number of these classes being in charge of University professors.

The First Methodist Church has a regularly appointed religious secretary, who gives his main attention to the students of his denomination. Several other churches appoint students each year to act as assistants to the local pastors.

By these means the students are brought into close contact with the religious life of Lawrence. A religious census of the student body during the past few years shows that an average of eighty-seven per cent of the students have religious preferences, sixty-eight per cent are church members, and that a large number are actively engaged in the work of the various churches and organizations connected therewith throughout the city.

LITERARY.

The Phi Beta Kappa Society. The Kansas Alpha Chapter of this society was organized in 1890. The object of the society is, primarily, the promotion of scholarship in the University. To this end, a portion of the members of the graduating class of the College, never to exceed one-sixth, who have made high records of scholarship in their University studies, are elected to membership.

German Club. The membership of this club, which meets once in two weeks, consists of such students as have made sufficient progress in German to take active part in the programs. The object of the club is to furnish the student special opportunity to familiarize himself with the spoken language, and to promote an interest in all that is German. Musical, literary, and dramatic programs are rendered by the students. There are also talks and lectures by members of the faculty and outside speakers. The meetings are conducted exclusively in German. Each year a German play is given by students of the department.

The Quill Club is the parent chapter of an intercollegiate organization of students and instructors especially interested in literary activities and literary criticism. Applicants for membership must submit manuscript for the approval of the club.

The Associated Journalism Students are organized for the purpose of bringing in speakers from the ranks of active journalists, and in general of working for the advancement of the Department of Journalism.

The English Club is composed of the instructors and advanced students in the Department of English, and meets bimonthly.

The French Club. The instructors and students in the French Department compose the Cercle Français, which meets once a week to present a brief literary program, reviews of articles in the leading French magazines, and reports on French topics. French only is used, as one of the chief objects of the club is to provide better opportunities than can be offered in the classroom for the practice of the spoken language. Another opportunity for such practice is found in the French play, given towards the close of each year.

The Greek Symposium consists of the instructors and students of the Greek Department, who meet once a month for the reading of papers and discussion of topics which are either too general or too special for class work. The meetings are held in the evening, at the home of one of the instructors, and the special program is followed by a social hour.

The Spanish Club. The Ateneo has been formed on the same general lines as the French Club for those students who wish to acquire facility in the use of spoken Spanish. At its weekly meetings, besides programs of a literary character, news of the Spanish-speaking world is reported and discussed. The Spanish play gives further opportunity to acquire readiness in speaking.

SCIENTIFIC.

The Sigma Xi Society. The Iota chapter of this honorary scientific society was established at the University in 1890. The society confers the honor of election to membership upon instructors and students who have shown special aptitude along scientific lines, especially with regard to research work. This chapter holds monthly meetings for the reading and discussion of scientific papers, and is the center of scientific interests at the University.

The Chemical Club is composed of the instructors and advanced students in the Department of Chemistry, and Chemical Engineers. Weekly

meetings are held, and the programs include reports on research work by instructors and students, reports on scientific meetings and associations, reviews of new books and important articles in chemical journals, and notices of important inventions and new chemical processes.

Civil Engineering Society. This is maintained by students, under the guidance of the instructors in the department. It holds monthly meetings and is frequently addressed by practicing engineers, besides maintaining a program of papers and discussions.

University of Kansas Branch of the American Institute of Electrical Engineers. This is composed of instructors and students who are associated members or student members of the national organization. It holds biweekly meetings for the discussion of papers presented before the national meetings of the association, for the review of current literature, and for addresses by practicing engineers.

University of Kansas Student Section of the American Society of Mechanical Engineers. This is essentially a student organization, under the supervision of an instructor who is a member of the national society. Weekly meetings are held for reports on current engineering literature, with occasional addresses by practicing engineers.

Affiliated Students' Society of the American Institute of Mining Engineers. This is a society composed of Junior and Senior students and instructors in the department, which enjoys the advantage of association with the institute. Meetings are held monthly for the discussion of the publications of the institute and the presentation of papers. Weekly department meetings in Mining Journal supplement the work of the society.

The Architectural Society is a student organization including students in both architecture and architectural engineering, under the supervision of the head of the department, who is a member of the American Institute of Architects. Biweekly meetings are held, at which illustrated lectures on allied subjects are given by faculty members or visiting architects; and papers presented by student members are discussed by the organization.

The Botany Club is composed of instructors and students of the Department of Botany. It meets twice a month.

The Snow Zoology Club is composed of instructors and advanced students of the department. It meets twice a month for the study and discussion of questions of general interest to the members, the aim being more particularly to keep in touch with recent discoveries.

The Mathematical Club is an organization of advanced students of the Department of Mathematics, with one faculty member elected by them as their official adviser. It meets twice a month to discuss mathematical questions of general interest.

The Entomology Club is composed of instructors and advanced students of the Department of Entomology. The meetings are held weekly, and are devoted to the presentation of researches conducted by the department and to current advances as presented through the entomo-

logical journals. Elections to membership are based on general University scholarship and special proficiency in entomology.

The Home Economics Club meets once a month. Its membership is elective.

The Geology Club is composed of mining students and such College students as specialize in geology. It meets once in two weeks.

The Pharmaceutical Society holds bimonthly meetings for the study of subjects especially related to the art of pharmacy, and for friendly intercourse. Its membership is drawn from students, faculty, and alumni of the School of Pharmacy.

DEBATING.

Debating Council. The Debating Council is made up of six members of the faculty, appointed by the Chancellor of the University, and two representatives from each of the two debating societies and the honorary debating fraternity. The Council has general supervision over all preliminary and interstate debates.

CIVIC.

The Jurisprudence Club meets every three weeks for the discussion of general questions of current interest. Its membership is elective.

The International Polity Club is an organization of men students who are interested in the study and discussion of international problems. It is affiliated with a national organization of college polity clubs and is represented on the national council of the organization. The membership is elective and any student is eligible for election.

The Woman's Forum meets twice a month to discuss public questions. Membership is informal, and the meetings are open to all women of the University.

DRAMATIC.

Dramatic Club. The students of the University maintain a dramatic club for the study and presentation of modern plays. Membership in the club is open to all students and is secured by try-outs held at stated intervals.

The Blackfriars Club is an organization of those majoring in the Department of English. Plays of interest in connection with the history of the drama are given twice yearly.

MUSICAL.

Orchestra. The University supports an orchestra of forty instruments, under the direction of one of the faculty of the School of Fine Arts. The orchestra makes a study of the orchestral masterpieces, furnishes music for University events, and gives two concerts annually.

Women's Glee Club. The Women's Glee Club is under the direction of the head of the Department of Voice Training. Membership is competitive. An annual concert is given.

Men's Glee Club. The Men's Glee Club is under the direction of the head of the Department of Voice Training of the School of Fine Arts.

The general control of the club, as to financial obligations and tours, is in the hands of a committee of the University Senate.

Band. The University Band is a permanent organization, fully uniformed, and directed by a professional leader. The band furnishes music for the more important University gatherings and gives several concerts annually.

PUBLIC OCCASIONS.

Convocation. At the opening of the fall semester, and occasionally during the year, convocations of the faculty and student body are held. At these gatherings speakers, either from the faculty or from abroad, discuss topics of general interest. The purpose of these meetings is to bring together all members of the University for instruction as well as for the development of a common spirit.

Vesper Services. Religious exercises are held occasionally at 4:30 Sunday afternoons. They are in charge of the Y. M. C. A. and the Y. W. C. A. The service is largely musical, though an address is often given.

University Lectures. Whenever circumstances make them available, men of recognized standing in any field of science or art are secured to give addresses at the University. About ten such addresses are given yearly.

University Concerts. The University supports a series of concerts given by artists and organizations of the highest standing.

UNIVERSITY OF ILLINOIS LIBRARY

OCT 10 1920

GENERAL INFORMATION.

ADMISSION.

The requirements for admission of graduates of Kansas high schools to the various schools of the University have been fixed by legislative enactment, which, by section 8875, General Statutes of 1915, provides that:

"Any person who shall complete a four-year course of study in any high school accredited by the State Board of Education shall be entitled to admission to the Freshman class of the State University, the State Agricultural College, or any of the State Normal Schools, on presenting a statement containing a transcript of his high-school record, signed by the principal of the school, and certifying that such person has satisfactorily completed said course of study."

For the guidance of prospective students who do not come under the provisions of the law, and who desire to prepare themselves for admission to any of the schools of the University, statements of entrance requirements will be found in the special sections of this catalog pertaining to these schools.

Entrance Requirements.

Candidates for admission who are not graduates of accredited Kansas high schools may offer themselves for examination in subjects required for admission.

These examinations will be given only during the first and the last week of the first semester and the last week of the second semester. Applications should be made to the Committee on Entrance Examinations, room 202, Blake Hall, by the Friday preceding, and should give the applicant's name, Lawrence address, and telephone number.

Admission of Special Students.

Special students are admitted to the various schools of the University upon conditions prescribed by the faculties.

Admission to Advanced Standing.

The regulations governing admission to advanced standing in the schools of the University are administered by a committee of the University Senate, which examines into the merits of each case presented to it, and either credits the applicant with a certain rank or recommends him to the heads of departments for advanced credit or examination.

Application for advanced standing should be made as early as possible. Students who expect to present credits for advanced standing will save much time and annoyance for themselves if they will forward their credentials as early as possible to the secretary of the Advanced Stand-

ing Committee. These credentials must include official transcripts of preparatory school records and college records, and a certificate of honorable dismissal from the college or university attended. These credentials should be sent to the secretary shortly after the end of the spring semester if the applicant intends to enter the University in the fall. They should be sent, at the very latest, three weeks before the opening of the University in the fall. The Advanced Standing Committee can furnish no estimate of advanced standing credit to prospective students unless the credentials indicated above are sent to the committee. The committee cannot consider applications for advanced standing which are made later than thirty days after matriculation.

If the applicant for advanced standing should be required to take an examination in any subject which he presents for advanced standing credit, this examination must be taken not later than the sixth week of his first semester in the University.

No advanced standing credit will be given for work done during a four-year course of study in a high school, academy, or preparatory school.

The maximum advanced standing credit for work done in a junior college is sixty hours. *In no case will work done in a junior college be credited as work of the Junior or Senior year in the University.*

Advanced standing credit is entirely provisional and may be withdrawn in whole or in part if the subsequent record of the student in the University shows that his scholarship and attainments do not justify the credits given at the time of his entrance. This provisional advanced standing rating will not become permanent nor be entered upon the books of the University until the student, by the successful completion of a year's work, has satisfied the Dean of the school concerned that his rating is justified.

All inquiries and correspondence concerning advanced standing should be addressed to E. F. Engel, secretary Advanced Standing Committee, University of Kansas.

REGISTRATION.

All candidates for admission having certificates from accredited schools and all students of the University intending to pursue their studies during the ensuing year must present themselves for registration at the University on September 13, 14, 15, 1920. *Registration at a later date will be permitted only on the payment of a fee of one dollar.*

ENROLLMENT.

After registration has been completed with the Registrar and fees have been paid, students should apply to the Dean of the school to which they desire admission for enrollment in their classes. Enrollment the first semester occurs September 14, 15, 1920, and on the first day of the second semester. *Enrollment at a later date will be permitted only on the payment of a fee of one dollar.*

EXAMINATIONS AND REPORTS.

Final Examinations are held for all students during the last week of each semester.

Special Examinations will be given only during examination weeks and during the opening week of the fall semester. All requests for special examinations must be approved by the Dean.

Dismissal. Absence from examination or failure in more than one-third of his work in any one semester severs a student's connection with the University.

Withdrawals. A student may be withdrawn from a class by the Dean, with the consent of his instructor. Honorable withdrawals will be permitted only when the student's work in the subject is of passing grade.

Whenever a student is failing in part of his work the Dean may, at his discretion, withdraw him from one or more of the classes in which he is failing and give him a failure in such subjects.

Grades. The letter A is reserved for work of marked excellence, and indicates high honor. The letter B indicates very good work, of much more than average quality. The letter C indicates that the work has been of good average character, better than that which deserves merely to pass. The letter D indicates work the lowest in quality that would enable a student to pursue, without undue lack of material or of method, the next dependent course, whether the latter be in the same department or in a related department. The letter I indicates that work is incomplete. The letter F indicates failure.

Incomplete and Failure. The work of a student who fails to appear for final examination is graded I or F, according as his class standing has been of passing grade or below passing grade. Work that has been of passing quality, some part of which is for good reason unfinished, is also graded I.

Grade I may be removed by special examination, but unless properly removed before the beginning of the corresponding semester of the following year it becomes a failure, and the student must reënroll in the course.

Grade F may be removed only by such reënrollment.

Inadequate Preparation. When students show by their current work insufficient entrance preparation in any study they may be required to make good such deficiency in any manner prescribed by their instructors.

EXPENSES OF STUDENTS.**Fees.**

Students are required to pay fees as scheduled herein. In all cases, the matriculation fee is paid but once—at the time the student first registers in any school of the University. The incidental fee is payable in full each year at registration.

Increase in Fees.

The fees at the University of Kansas were increased by the Board of Administration in March, 1919, the new schedule of fees to take effect in September, 1920. By provision of the Board of Administration all fees of \$30 or less are payable at the beginning of each year, but in case of withdrawal not later than the first of the second semester a refund of one-half the fee will be payable; and all fees over \$30 are payable in two equal instalments at the beginning of each semester. The new schedule is as follows:

COLLEGE OF LIBERAL ARTS AND SCIENCES.

Matriculation fee, for residents of the state.....	\$10.00
for nonresidents	15.00
Incidental fee, for residents of the state.....	20.00
for nonresidents	30.00
Graduation fee, at graduation.....	10.00

SCHOOL OF ENGINEERING.

Matriculation fee, for residents of the state.....	\$10.00
for nonresidents	15.00
Incidental fee, for residents of the state.....	20.00
for nonresidents	30.00
Graduation fee, at graduation.....	10.00

SCHOOL OF LAW.

Matriculation fee, for residents of the state.....	\$10.00
for nonresidents	15.00
Incidental fee, for residents of the state.....	35.00
for nonresidents	45.00
Graduation fee, at graduation.....	10.00

SCHOOL OF PHARMACY.

Matriculation fee, for residents of the state.....	\$10.00
for nonresidents	15.00
Incidental fee, for residents of the state.....	35.00
for nonresidents	45.00
Graduation fee, at graduation.....	10.00

Students taking the regular four years in pharmacy are registered during the first two years in both the School of Pharmacy and the College of Liberal Arts and Sciences, and may pay the College incidental fee so long as their work is confined to courses offered in the College.

SCHOOL OF MEDICINE.

(First two years.)

Matriculation fee, for residents of the state.....	\$10.00
for nonresidents	15.00
Incidental fee, for residents of the state.....	35.00
for nonresidents	45.00
Graduation fee, at graduation.....	10.00

(For special fees for clinical work, see section VIII.)

During the first year of the regular four years in medicine students are registered in both the School of Medicine and the College of Liberal Arts and Sciences, and will pay the College incidental fee. During

the succeeding years they will pay the incidental fee of the School of Medicine.

A student taking two-thirds or more of his work in the School of Pharmacy or the School of Medicine is considered a student of that school in which he takes the work, and will be required to pay the regular tuition in full: \$35 for residents of the state, and \$45 for non-residents. This applies in particular to all College students who elect the major part of their work in the School of Pharmacy or the School of Medicine.

A student who is enrolled for less than two-thirds of his work in either school will be required to pay, in addition to the regular incidental fee required by the College, a pro rata professional school incidental fee of fifty cents for each hour in which he is enrolled. This has special application to College students who are taking the major part of their work in the College and have paid the incidental fee required by the College, but who desire to elect certain courses in the School of Pharmacy or the School of Medicine.

SCHOOL OF FINE ARTS.

Matriculation fee, for residents of the state.....	\$10.00
for nonresidents	15.00
Graduation fee, at graduation.....	10.00

(For other fees, see School of Fine Arts, Section V.)

GRADUATE SCHOOL.

Matriculation fee, for residents of the state.....	\$10.00
for nonresidents	15.00
Incidental fee, for residents of the state.....	20.00
for nonresidents	30.00
Diploma fee for each degree.....	10.00

SUMMER SESSION.

Incidental fee, for residents of the state (6 or 10 weeks)	\$10.00
for nonresidents	15.00
for 4-weeks session, one-half of the above.	

SCHOOL OF EDUCATION.

Matriculation fee, for residents of the state.....	\$10.00
for nonresidents	15.00
Incidental fee, for residents of the state.....	20.00
for nonresidents	30.00
Graduation fee, at graduation.....	10.00

CORRESPONDENCE DEPARTMENT.

Incidental fee, for residents of the state, any school..	\$10.00
for nonresidents of the state, any school,	15.00

A fee of \$6 annually is required of each student to cover the expense of maintaining the general health of the University body.

Late registration and late enrollment in class each require a fee of \$1.

Announcements of laboratory and shop fees will be found under such courses as require them.

Living Expenses.

Information concerning the location of rooming and boarding places may be had from the secretary of the University Y. M. C. A., or at the office of the Registrar.

The average price of board, rooms, light, and fuel may be placed at from \$7 to \$20 a week. Day board in private families and at city restaurants may be obtained for \$7 a week. Day board in clubs varies from \$5.60 to \$7.00 a week. Furnished rooms, usually occupied by two students, range from \$12 to \$25 a month. Unfurnished rooms rent for \$3 to \$6 a month. Students who can supply their own furniture and buy and prepare provisions for the table can lessen expenses materially.

The following table shows the estimated expenses of a student of the University for a year, excluding clothing and traveling expenses; the expense varies with the course pursued, and also depends, naturally, upon the tastes and habits of the student:

Board	\$225.00 to \$280.00
Room (two in a room).....	54.00 to 112.50
Books and stationery.....	12.00 to 66.00
Laundry	10.00 to 40.00
Matriculation and other fees.....	30.00 to 45.00
Incidentals	50.00 to 200.00
Totals	\$381.00 to \$743.50

The estimated expenses for students in the Medical, Law, and Pharmacy schools of the University will be larger, due to the higher incidental fee.

Many students reduce their expenses for laundry by availing themselves of the parcel post privilege, sending their laundry home.

PRIZES AND AIDS.

The **William J. Bryan Prize** is derived from the income of \$250 which was presented to the University by Mr. Bryan in 1898, upon the condition that the proceeds should be used for "a prize for the best essay discussing the principles which underlie our form of government." The prize is offered in alternate years. The details of the contest are intrusted by the faculty of the College to a special committee. Not awarded in 1919.

The **Hattie Elizabeth Lewis Memorial Prizes** were established in 1911, in memory of Hattie Elizabeth Lewis, a former student of the University. They are open to all students of the University, and have since 1911 been given annually for the best essays on some phase of the general theme, "The Application of the Teachings of Jesus to the Practical Affairs and Relations of Life." They have amounted to \$250 annually. Awards in 1919: First to George E. Struble, a Freshman in the College; second to Erna Brueckmann, a Freshman in the College; third to Florence E. Bliss, a Freshman in the College; fourth to William A. Fite, a Graduate student.

The Thayer Prize for Architectural Design is derived from the income of \$1,000, presented by Mrs. Wm. B. Thayer in 1919, and awarded under conditions determined by the faculty of the department.

University Fellowships to the number of sixteen have been established for graduates of the University of Kansas and of other recognized colleges and universities who have distinguished themselves for scholarship. These fellowships are of \$300 each.

University Fellowships for Graduates of Kansas Colleges, eleven in number, are offered yearly. These fellowships also amount to \$300 each, and one is offered to each of eleven Kansas colleges chosen from year to year by the administrative committee of the Graduate School.

The Charles S. Griffin Memorial Scholarship was established in 1910 by Mrs. Mary Griffin, in memory of her son. The interest on \$1,000 is awarded annually to a student of the College. Held in 1919-'20 by William L. McPherson and Elijah Jacobs.

The Marcella Howland Memorial Scholarship of ninety dollars was established in 1900, by Mrs. Marcia Brown Howland, in memory of her daughter. It is open to young women of the Junior and Senior classes in the College. Held in 1919-'20 by Emma Ida Fleer.

The Frances Schlegel Carruth Scholarship in German was established in 1909, in memory of Frances Schlegel Carruth. It is a Freshman scholarship of one hundred dollars, awarded to the graduate of the Lawrence high school who passes the best examination in two years' entrance German. Held in 1919-'20 by Mary E. Chase.

The Women's Student Government Association Scholarship of fifty dollars was established in 1910. It is open to young women of the Freshman class for use in the Sophomore year. Held in 1919-'20 by Erna Brueckmann.

The University Women's Association Scholarship of one hundred dollars was established in 1915. Held in 1919-'20 by Pearl L. Holland.

The Eliza Matheson Innes Memorial Scholarship of one hundred dollars was established in 1911, by Mr. George Innes in honor of his wife. It is open to women students of the College above the Freshman year, or to women students of the Graduate School. Held in 1919-'20 by Vera Grace Smith.

The Caroline Mumford Winston Memorial Scholarship of thirty-five dollars was established in 1912, by Mr. Thomas Winston, in memory of his wife. It is open to women students of the College above the Freshman year, or to women students of the Graduate School. Held in 1919-'20 by Jessamine Fugate.

The Kansas Branch of the Association of Collegiate Alumnae established a scholarship of seventy dollars in 1912. It is open to women students of the College above the Freshman year, or to women students of the Graduate School. Held in 1919-'20 by Pauline Anker.

The Lucinda Smith Buchan Memorial Scholarship was established in 1900 in memory of Lucinda Smith, A. B., 1890, by the alumnae members of the Pi Beta Phi Sorority. It is a loan of two hundred dollars for two

years without interest, open to the young women of the Junior and Senior classes in the College. Held in 1919-'20 by Clara Nigg.

The Frank Egbert Bryant Memorial Scholarship of fifty dollars is open to women students of the College. Held in 1919-'20 by Gladys N. Sweigart.

The Mrs. J. B. Watkins Scholarship of seventy-five dollars was established in 1915. It is awarded to young women of the Freshman class. Held in 1919-'20 by Ada B. Reed and Wayne Stevenson.

George Innes offers a scholarship for the benefit of a music student in the School of Fine Arts. Held in 1919-'20 by Fred Semon.

The David and Rebecca Harvey Memorial Scholarship, established by their sons, Dr. F. D. G. Harvey, Mr. Sherman A. Harvey and Mr. Edward S. Harvey for the benefit of a colored student above the Freshman year. Held in 1919-'20 by Willard Johnson.

The Prince Hall Grand Chapter of the Eastern Star Scholarship, open to colored women students above the Freshman year. Held in 1919-'20 by Edna Anderson.

Mrs. John T. Stewart has established two scholarships in the school of Fine Arts, one for the benefit of a Sophomore music student and the other for the benefit of an art student. Held in 1919-'20 by Josephine Fulks (art), and Alexander Gatewood (music).

Mayor George L. Kreeck offers a scholarship for the benefit of a music student in the School of Fine Arts. Held in 1919-'20 by Mabel McNary.

The Music Department of the School of Fine Arts offers two scholarships, one for the benefit of a Freshman music student and the other for the benefit of a Sophomore music student. Held in 1919-'20 by Adrian Pouliot.

The Drawing and Painting Department of the School of Fine Arts offers a scholarship for the benefit of an art student.

The Daughters of the American Revolution Scholarship was established in 1912 by the Betty Washington Chapter of the Daughters of the American Revolution. It is a loan of one hundred dollars without interest for three years after graduation, and open to young women of the Senior class. Held in 1919-'20 by Frieda Tiemann.

The Student Loan Fund was established in July, 1894, by the graduating class in College and Engineering of that year. It has increased through donations from subsequent classes and from private individuals until it amounts to about \$4,000. By the terms of the gift sums not to exceed \$100 may be loaned on bankable notes at four per cent interest to students above the Freshman year.

The James L. Mead Loan Fund of \$5,000 is held in trust on the same terms as those under which the student loan fund is operated.

The May Stephens Green Loan Fund of \$5,000, established by the will of the late Dean James Woods Green in honor of his wife, is held in trust and administered by the Student Loan Committee under terms set forth in the will.

The Marvin Memorial Loan Fund was established in 1918 by Mrs. F. O. Marvin, widow of Dean F. O. Marvin, who until his death in 1915 was at the head of the School of Engineering. The fund now amounts to \$500. Loans are made to any engineering students under conditions determined by the dean of the school.

An Aid Fund has been established for the assistance of worthy women students.

Employment. The University, through the Young Men's and the Young Women's Christian Associations, maintains an employment bureau. The secretaries of these associations may be addressed by students desiring employment.

Students should not undertake a large amount of outside work and endeavor at the same time to carry full work in their University studies. Three hours per week of energetic efficient work in class room, study, library, or laboratory, should be given for every semester hour for which the student is enrolled. That is, the student who is enrolled for fifteen semester hours of work should give to those studies a minimum of forty-five hours per week of vigorous, intensive application.

ROOMING HOUSES.

Approved Rooming Houses for Men. Lists may be had from the Registrar, or the Secretary of the University Y. M. C. A., on application.

Approved Rooming Houses for Women. The University attempts to secure the best housing conditions available for its women students, through a committee under whose direction a list of rooming houses for women is prepared each year. The sanitary and social conditions of each house are investigated before it is placed on the approved list. Students are expected to room only in houses that are on this list. This list, together with regulations governing rooming places, may be had from the Adviser of Women. By action of the Board of Administration, occupancy of rooms by women students shall be subject at all times to the approval of the Adviser of Women; further, women students are not permitted to lodge in houses in which men also lodge, unless for special reasons the rule is waived by the Adviser. The University expects students to keep their rooms for at least one semester or to make changes only on recommendation of the Adviser.

House Customs. The following customs have been adopted by the women of the University as organized in the Women's Student Government Association:

I. Rooming houses for women should be closed not later than 10 p. m. every night in the week, except when entertainments of general interest are held, and on Friday and Saturday nights, when the closing hour is 11.

II. Students' parties should be held on Friday or Saturday nights, or on nights preceding holiays, and on holidays.

III. Social engagements should not be made for the evenings of school days, except for Friday evenings, or for evenings preceding holidays, and on holidays.

Miss Alberta L. Corbin, acting Adviser of Women, exercises general supervision over all houses where women live, and gives general and individual attention to the needs of women students. She invites correspondence with parents and guardians with regard to the welfare of women students.

STUDENT HEALTH.

The University Health Service has been established for the purpose of safeguarding the health of students. To accomplish this, its activities are carried on along three general lines: education, through lectures, publications and exhibits; sanitation, through supervising the students' environment both on and off the campus; and personal examination and advice.

Thorough physical examinations will be made of all students entering the University. The result of each examination is recorded and serves as a basis in determining the nature of exercise which the department of physical education will assign to the student.

SECTION II.

Graduate School.

(61)

FACULTY.

- FRANK STRONG,* Ph. D., Chancellor of the University, and President of the Faculty.
- FRANK W. BLACKMAR, Ph. D., Dean of the Graduate School, and Professor of Sociology.
- JAMES W. GREEN,† A. M., Professor of Law.
- EDGAR H. S. BAILEY, Ph. D., Professor of Chemistry and Metallurgy.
- ALEXANDER M. WILCOX, Ph. D., Professor of Greek Language and Literature.
- LUCIUS E. SAYRE, Ph. M., Professor of Pharmacy.
- CHARLES G. DUNLAP, Litt. D., Professor of English Literature.
- CARL A. PREYER, Mus. D., Professor of Piano and Composition.
- OLIN TEMPLIN, A. M., Professor of Philosophy.
- EDWIN M. HOPKINS,‡ Ph. D., Professor of Rhetoric and English Language.
- FRANK H. HODDER, Ph. M., Professor of American History and Political Science.
- ERASMUS HAWORTH,* Ph. D., Professor of Geology and Mineralogy.
- ARTHUR T. WALKER, Ph. D., Professor of Latin Language and Literature.
- WILLIAM C. STEVENS, M. S., Professor of Botany.
- ARVIN S. OLIN, LL. D., Professor of Education.
- WILLIAM A. GRIFFITH, Professor of Drawing and Painting.
- EUGENIE GALLOO, A. M., Professor of Romance Languages and Literatures.
- WILLIAM L. BURDICK, Ph. D., Professor of Law.
- FRANK STRONG, LL. D., Professor of Constitutional Law.
- CHARLES S. SKILTON, A. B., Professor of Organ, Theory of Music, and Music History.
- IDA H. HYDE,‡ Ph. D., Professor of Physiology.
- WILLIAM H. JOHNSON, A. M., Professor of Education.
- SAMUEL J. HUNTER, A. M., Professor of Entomology.
- PERLEY F. WALKER, M. M. E., Professor of Mechanical Engineering.
- MERVIN T. SUDLER, M. D., Professor of Surgery.
- L. D. HAVENHILL, Ph. M., Professor of Pharmacy.
- FREDERICK E. KESTER, Ph. D., Professor of Physics.
- GEORGE C. SHADD, E. E., Professor of Physics.
- HAMILTON P. CADY, Ph. D., Professor of Chemistry.
- HERBERT A. RICE, C. E., Professor of Mathematics and Structural Engineering.
- BENNETT M. ALLEN, Ph. D., Professor of Zoölogy.
- EDMUND H. HOLLANDS, Ph. D., Professor of Philosophy.
- HENRY W. HUMBLE, J. D., Professor of Law.

* Resigned.

† Deceased.

‡ Absent on leave, 1919-'20.

FRANK B. DAINS, Ph. D., Professor of Chemistry.
 CLEMENT C. WILLIAMS, C. E., Professor of Civil Engineering.
 ELMER F. ENGEL, A. M., Professor of German.
 WILLIAM B. DOWNING, Professor of Voice and Public-school Music.
 ELIZABETH C. SPRAGUE, Professor of Home Economics.
 RAPHAEL D. O'LEARY, A. B., Professor of Rhetoric.
 RAYMOND A. SCHWEGLER, A. M., Professor of Education.
 ARTHUR J. BOYNTON, A. M., Professor of Economics.
 CHARLES H. ASHTON, Ph. D., Professor of Mathematics.
 HAROLD L. BUTLER, A. B., Professor of Voice.
 ARTHUR NEVIN, Professor of Ensemble and Music Extension.
 HARRY C. THURNAU, Ph. D., Professor of German.
 FREDERICK J. KELLEY, Ph. D., Professor of Education.
 RAYMOND A. KENT, Ph. D., Professor of Education.
 DAVID L. PATTERSON, B. S., Professor of European History.
 LEON N. FLINT, A. B., Professor of Journalism.
 FREDERICK H. SIBLEY, M. E., Professor of Mechanical Engineering.
 GEORGE E. COGHILL, Ph. D., Professor of Anatomy.
 OLE O. STOLAND, Ph. D., Professor of Physiology.
 WALTER S. HUNTER, Ph. D., Professor of Psychology.
 WILLIAM M. HEKKING, B. P., Professor of Drawing and Painting.
 NOBLE P. SHERWOOD, A. M., Professor of Bacteriology.
 ARTHUR L. OWEN, A. M., Professor of Hispanic Languages.
 CLINTON MASON YOUNG, B. S., Professor of Mining Engineering.
 WALTER ROBINSON SMITH, Ph. D., Professor of Sociology.
 CHESTER ARTHUR BUCKNER, Ph. D., Professor of Education.
 HERMAN CAMP ALLEN, Ph. D., Professor of Chemistry.
 SELDEN LINCOLN WHITCOMB,* Litt. D., Professor of Comparative Literature.
 LOUIS E. SISSON, A. M., Professor of English.
 RAYMOND C. MOORE, Ph. D., Professor of Geology and Paleontology.
 ALBERT JAMES HARNO, LL. B., Professor of Law.
 ARTHUR E. HERTZLER, Ph. D., Professor of Surgery.
 CHARLES ARTHUR HASKINS, B. S., Professor of Sanitary Engineering.
 HARRY ROSWELL WAHL, M. D., Professor of Pathology and Bacteriology.
 JACOB CHRISTIAN RUPPENTHALL, LL. B., Acting Professor of Law.
 C. FERDINAND NELSON, Ph. D., Professor of Physiological Chemistry.
 MILES W. STERLING, A. M., Associate Professor of Greek.
 HANNAH OLIVER, A. M., Associate Professor of Latin.
 MARTIN E. RICE, M. S., Associate Professor of Physics.
 ALBERTA L. CORBIN, Ph. D., Associate Professor of German.
 WILLIAM J. BAUMGARTNER, A. M., Associate Professor of Zoölogy.
 HENRY O. KRUSE,* A. M., Associate Professor of German.
 CLARENCE C. CRAWFORD, Ph. D., Associate Professor of History.
 WILLIAM S. JOHNSON, Ph. D., Associate Professor of English Literature.
 VICTOR E. HELLEBERG, A. B., Associate Professor of Sociology.
 MARGARET LYNN, A. M., Associate Professor of English Literature.

* Absent on leave, 1919-'20.

ELISE NEUEN SCHWANDER, Ph. D., Associate Professor of Romance Languages.

WILLIAM W. DAVIS, Ph. D., Associate Professor of American History.

ULYSSES G. MITCHELL, Ph. D., Associate Professor of Mathematics.

ALFRED H. SLUSS, B. S., Associate Professor of Mechanical Engineering.

FLOYD C. DOCKERAY, Ph. D., Associate Professor of Psychology.

WILLIAM C. MCNOWN, B. S., Associate Professor of Civil Engineering.

HERBERT W. NUTT, Ph. B., Associate Professor of Education.

JOSEPH G. BRANDT, Ph. D., Associate Professor of Greek.

HERBERT B. HUNGERFORD, Ph. D., Associate Professor of Entomology.

RALPH E. CARTER, A. M., Associate Professor of Education.

ELLIS B. STOFFER, Ph. D., Associate Professor of Mathematics.

GEORGE W. STRATTON, Ph. D., Associate Professor of Chemistry.

WILLIAM M. DUFFUS, A. M., Associate Professor of Economics.

FRANCIS ELLIS JOHNSON, E. E., Associate Professor of Electrical Engineering.

BLAINE F. MOORE, Ph. D., Associate Professor of Political Science.

WILLIAM L. EIKENBERRY, B. S., Associate Professor of the Teaching of Biological Sciences.

SOLOMON LEFSCHETZ, Ph. D., Associate Professor of Mathematics.

JOHN ISE, Ph. D., Associate Professor of Economics.

JOHN R. FRAZIER, Associate Professor of Drawing and Painting.

LILA SHEPARD WELLINGTON, Associate Professor of Voice.

DINSMORE ALTER, Ph. D., Associate Professor of Astronomy.

FRANK LOGAN BROWN, B. S., Associate Professor of Mechanics.

RICHARD L. GRIDER, E. M., Associate Professor of Mining Engineering.

ARTHUR JACKSON MIX, Ph. D., Associate Professor of Botany.

WINTHROP P. HAYNES, Ph. D., Associate Professor of Geology, Mineralogy and Petrology.

DONALD RAY BLACK, M. D., Associate Professor of Bacteriology and Pathology.

EDWIN F. STIMPSON, B. S., Assistant Professor of Physics.

JAMES E. TODD,* A. M., Assistant Professor of Geology and Mineralogy.

ALBERT M. STURTEVANT, Ph. D., Assistant Professor of German.

LULU GARDNER, A. B., Assistant Professor of Rhetoric.

WILLIAM R. B. ROBERTSON, Ph. D., Assistant Professor of Zoölogy.

WALTER S. LONG, A. M., Assistant Professor of Chemistry.

NADINE NOWLIN, A. M., Assistant Professor of Zoölogy.

GRACE M. CHARLES, Ph. D., Assistant Professor of Botany.

JACOB O. JONES, M. C. E., Assistant Professor of Hydraulics.

JOSEPHINE BURNHAM, Ph. D., Assistant Professor of English.

FRANK E. MELVIN, Ph. D., Assistant Professor of European History

AMIDA STANTON, A. M., Assistant Professor of Romance Languages.

CLARENCE ESTES, B. S., Assistant Professor of Chemistry.

WALTER B. BODENHAFFER, A. M., Assistant Professor of Sociology.

HUBERT SHEPPARD, Ph. D., Assistant Professor of Anatomy.

RAY QUINCY BREWSTER, Ph. D., Assistant Professor of Chemistry.

HOWARD M. ELSEY, A. M., Assistant Professor of Chemistry.

FLOYD ELBA ROWLAND, Ph. D., Assistant Professor of Chemistry.

* Absent on leave, 1919-'20.

- JENS PETER JENSEN, A. M., Assistant Professor of Economics and Commerce.
- ANDREW J. NEWMAN, A. M., Assistant Professor of Economics and Commerce.
- JOSEPH EDWARD WELKER, M. of C. E., Assistant Professor of Physiology.
- JOSE MARIA OSMA, Assistant Professor of Hispanic Language.
- JOSE MARIA ALBALADEJO, Assistant Professor of Hispanic Language.
- JOHN ADLUM DENT, M. E., Assistant Professor of Mechanical Engineering.
- HERBERT E. JORDON, Ph. D., Assistant Professor of Mathematics.
- CHARLES EUGENE JOHNSON, Ph. D., Assistant Professor of Zoölogy.
- ELIZABETH FAULKNER, A. M., Assistant Professor of the Teaching of English.
- THOMAS J. SMART, A. M., Assistant Professor of Education, Extension Division.
- VIOLA ANDERSON, M. S., Assistant Professor of Home Economics.
- CARLOS ISAAC REED, A. B., Assistant Professor of Physiology.
- E. LEE TREECE, A. B., Instructor in Bacteriology.
- CORNELIA M. DOWNS, A. B., Instructor in Bacteriology.
- JAMES B. MCNAUGHT, A. M., Instructor in Bacteriology.
- JOHN C. WARNER, A. B., Instructor in Physics and Astronomy.

ADMINISTRATIVE COMMITTEE.

FRANK W. BLACKMAR, *Chairman*.

FRANK H. HODDER, <i>Secretary</i> .	FRED E. KESTER.
SAMUEL J. HUNTER.	C. H. ASHTON.

UNIVERSITY RESEARCH COMMITTEE.

FRANK W. BLACKMAR, *Chairman*.

BENNETT M. ALLEN.	L. E. SAYRE.
FRANK B. DAINS.	S. L. WHITCOMB.
GEORGE E. COGHILL.	P. F. WALKER.
FRED J. KELLY.	W. S. HUNTER, <i>Secretary</i> .
GEORGE C. SHAAD.	

Also *ex officio* members who are members of the Administrative Committee of the Graduate School.

FRED E. KESTER.	FRANK H. HODDER.
C. H. ASHTON.	SAMUEL J. HUNTER.

UNIVERSITY FELLOWS, 1919-'20.

- BURGERT, ERAN O., A. B. '18, University of Kansas.—*Mathematics*.
- DIELMANN, RETA HAZEL, A. B. '17, University of Kansas.—*History*.
- FLETCHER, LIONA, A. B. '17, University of Kansas.—*History*.
- GIDINGHAGEN, MYRTLE R., A. B. '19, University of Kansas.—*Spanish*.
- HALL, ROYAL G., A. B. '12, Park College.—*Sociology*.
- HARRELL, CHASTAIN G., A. B. '16, William Jewell College.—*Chemistry*.
- HOLLOWAY, RICHARD B., A. B. '19, University of Kansas.—*Economics*.
- HOOVER, J. H., A. M. '18, University of Kansas.—*Education*.

HULL, MYRA,* A. B. '19, University of Kansas.—*English*.
 KINNEY, ETHEL MAY, A. B. '18, University of Kansas.—*Biochemistry*.
 MACGREGOR, HELEN, A. B. '17, Yankton College, S. D.—*Ancient Languages*.
 MARTIN, HELEN MARIE,* A. B. '19, University of Kansas.—*French*.
 McLATCHEY, NINA M., A. B. '11, Washburn College.—*Mathematics*.
 McQUISTON, RAYMER, A. B. '16, University of Kansas.—*English*.
 OLANDER, CLIFFORD PAUL, A. B. '19, Washburn College.—*Chemistry*.
 PREYER, MARY, B. M. '18, University of Kansas.—*Fine Arts*.
 REDING, KATHERINE, A. B. '18, University of Kansas.—*Spanish*.
 STARRETT, ELLIS L., A. B. '19, University of Kansas.—*Sociology*.
 STORY, ROY, A. B. '19, Nebraska Wesleyan.—*Chemistry*.
 SWANSON, CARL A.,* A. B. '18, University of Kansas.—*Romance Languages*.
 WHEELER, MAYME, A. B. '12, University of Kansas.—*English*.
 WHEELER, MRS. MABEL RANNEY, A. B. '13, Pittsburg Normal.—*Sociology*.
 WHITE, HAROLD OGDEN,* A. B. '18, Southwestern College.—*English*.

FELLOWS FROM KANSAS COLLEGES, 1919-'20.

WASHBURN COLLEGE.*

BETHANY COLLEGE—MALM, ALBA, A. B. '19.—*Zoölogy*.
 EMPORIA COLLEGE—BLIM, MILES, A. B. '19.—*Fine Arts and History*.
 FAIRMOUNT COLLEGE—BAYS, MARTHA E., A. B. '19.—*Bacteriology*.
 SOUTHWESTERN COLLEGE—BUTLER, LEOTA RAE, A. B. '19.—*Chemistry*.
 OTTAWA UNIVERSITY—POTTS, BLANCHE ANNA, A. B. '19.—*Fine Arts*.
 BAKER UNIVERSITY.*
 McPHERSON COLLEGE—GREENWOOD, GRACE, A. B. '19.—*Education*.
 COOPER COLLEGE—THOMPSON, RUTH, A. B. '19.—*Chemistry*.

* Resigned.

THE GRADUATE SCHOOL.

The Graduate School was organized in 1896-'97, for the purpose of giving opportunity for students to pursue advanced work, and to encourage independent and scientific investigation. Courses of study for advanced degrees are offered in all of the schools of the University, nearly every department being represented. Through the Graduate School all the advanced degrees of the University are granted.

REQUIREMENTS FOR ADMISSION.

Admission to the Graduate School ordinarily is granted to graduates of this University holding the bachelor's degree, and to graduates of other colleges and universities of good standing on presentation of proper evidence of scholarship and testimonials of good character.

REGISTRATION.

Students wishing to register should first apply to the Dean of the Graduate School. When it is ascertained in what department the student desires to do his major work, the Dean will refer him to the head of that department, who will select the courses, after consultation with the student. The student will then submit the courses to the Dean, and if they are approved the applicant will be given a card permitting him to register in the office of the Registrar. Work to be counted as graduate work is specified in the catalog, and must be designated as graduate on the enrollment card filed in the Registrar's office.

DEGREES GRANTED.

ACADEMIC DEGREES: Master of Arts, Master of Science, Doctor of Philosophy.

PROFESSIONAL DEGREES: Civil Engineer, Mechanical Engineer, Mining Engineer, Chemical Engineer, Electrical Engineer, Master of Science in Education, Master of Music.

The Requirements for the Degrees of Master of Arts and Master of Science.

When the candidate for the master's degree has selected the department in which his major work is to be done, the head of that department, in consultation with the candidate, approves his work for the master's degree, which may be confined to the department of the major study or may be selected from that and not more than two other departments. The decision of the head of the department is subject to the veto of the Dean of the Graduate School, but appeal may be made from the decision of the Dean to the Graduate Faculty. The head of the major department approves the courses selected for each semester on a card provided for the same, which is kept on file at the Dean's office. If the student subsequently changes his selection of a major department, the graduate work already done cannot be counted toward the master's degree unless approved by the head of the new major department.

The master's degree will be granted only after at least one full year's graduate work. The candidate must have completed with high credit

thirty hours of work chosen from the courses open to graduates, published in the catalog, or approved by the departments concerned and the administrative committee. Courses for which a professional degree is given will not be counted toward this degree. Not more than sixteen hours' credit can be given in one term.

Ordinarily each candidate for the master's degree is required to present a thesis to the head of the major department. The thesis must embody the results of scholarly research on some topic connected with the candidate's major study. The thesis must be completed and given to the head of the department under whose direction it has been done, not later than May 15 preceding the June in which the candidate expects to receive his degree. After examining the thesis, the head of the department shall report its acceptance to the Registrar and deposit the thesis in the office of the Dean of the Graduate School. The thesis must be typewritten and bound in cloth. In special cases, where it seems advisable for the candidate to devote all of his time to regular class work, not involving research, on the recommendation of the head of the department and the consent of the Dean, the requirement of a thesis may be waived.

Ordinarily the candidate for the master's degree is expected to spend a minimum of one year in resident graduate work at some university, the latter half of which at least must be done in residence at the University of Kansas. These regulations permit the acceptance of graduate work done in other institutions to the extent of not more than half of the work, but all credits offered are subject to the approval of the administrative committee.

Engineering Degrees.

Graduates in engineering in this University, and masters of science who have received their degrees through the Graduate Faculty, having majored in engineering, are eligible to the professional degree of civil engineer, electrical engineer, mechanical engineer, mining engineer, or chemical engineer, whichever is appropriate to the undergraduate courses taken. Candidates for these degrees must have spent at least three years' actual time in professional practice, in positions of responsibility, in design, construction or operation of engineering works, and must furnish detailed and satisfactory evidence as to the nature and extent of this practice.

Each must submit an engineering thesis, accompanied by detailed explanations, drawings, specifications, estimates, etc., and embodying the results of their own work or observation. If approved, the thesis and all accompanying material become the property of the University.

All theses for professional degrees must be delivered to the Dean of the School of Engineering on or before the 15th day of May.

Doctor of Philosophy.

The degree of doctor of philosophy will be granted for advanced scholarship, and the performance of independent work in some special line, under the following conditions:

1. The candidate must be a baccalaureate graduate of some college or university of good standing; and he must give satisfactory evidence to the faculty of the Graduate School that he possesses an adequate preparation for graduate work.

2. He must make application to the Dean of the Graduate School before the 1st day of October preceding the commencement at which he intends to present himself for the degree, and must then give satisfactory evidence of his ability to read such German and French as may be necessary for the proper prosecution of his studies.

3. He must have spent at least three full college years in resident graduate work at this or some other approved university, the last year of

which he must have spent as a resident student of this University. The time spent in attaining the degree of A. M. may be counted toward satisfying this time condition.

4. He must present a thesis showing the result of original research of a high character, and must pass acceptable examinations, both written and oral, in one chief or major study and two allied, subsidiary or minor studies, not more than two of which may be in the same department. The oral examination is given before the faculty of the Graduate School, where the candidate may be required to defend his thesis. This thesis, embodying the results of original research in some subject connected with his major study, must be presented to the head of the department in which the work was done, not later than the 1st of May preceding the commencement at which the degree is to be conferred, and if approved by him it is placed on file for inspection in the office of the Dean of the Graduate School for at least two weeks. If the thesis is finally approved, the candidate must, before receiving the degree, deliver at least fifty printed copies of it to the Librarian of the University, or give proper security for the printing of that number; but if the thesis has already been printed; ten copies only need be deposited with the Librarian.

UNIVERSITY FELLOWSHIPS.

General Fellowships.

For the encouragement of advanced study and research, the University of Kansas has established fifteen fellowships for graduates of special merit. Each fellowship entitles the holder to \$350. Fellows are expected to devote their time to investigation and research leading to an advanced degree, except that they may be required to give not exceeding six hours of educational service per week in the department to which they are assigned. These fellowships are awarded to graduates of the University of Kansas, and of other colleges and universities of good standing, who have distinguished themselves for special scholarship and marked ability.

For the year 1920-'21 these fellowships may be awarded to the best qualified candidates applying in one of the departments enumerated below.

Applications for fellowships may be filed, on blanks provided, with the Dean of the Graduate School on or before the first day of March of the collegiate year preceding that during which the fellowship is desired. Such applications may be accompanied by recommendations of instructors and by specimens of original work of the applicants, either published or in manuscript.

The applications of the various candidates are referred to the administrative committee of the Graduate School, which acts as a fellowship committee in connection with the heads of the departments in which fellowships are granted. The committee, after consideration of the relative merits of all applicants, nominates the successful candidates and recommends them to the Board of Administration for election. Fellows are elected for a term of one year. However, in special cases they may be reelected for one additional year.

Fellowships for Graduates of Kansas Colleges.

In order to promote advanced study at the University of Kansas, and to encourage the graduates of Kansas colleges and universities to continue their work, the University of Kansas offers one fellowship of \$350 to each of nine Kansas colleges.

Candidates for fellowships are to be nominated by the faculties of the respective colleges, from the classes graduating in June before the September when they are to enter upon their fellowships. However, in case there are no satisfactory candidates in the classes referred to, candidates

may be nominated from other graduating classes. It is understood that the candidate shall be from among those attaining high scholarship in the respective classes. On or before the first day of March of the year in which the fellowship is awarded, the president of the college receiving the fellowship shall send the name of the candidate nominated by the college faculty or its committee, with a statement of his qualifications, to the Dean of the Graduate School of the University of Kansas.

The candidate's application will be considered by the administrative committee of the Graduate School as in case of other fellowships, and if satisfactory he will be recommended to the Board of Administration for election. A fellow so elected may choose his work, in accordance with the rules of the Graduate School, in any of the departments offering work in the Graduate School.

Each fellow may be called upon for not more than four hours' educational service per week in the department in which he chooses his major work.

DEPARTMENTS AND EQUIPMENT.

The following departments offer graduate work in the University. In the majority of them the facilities are adequate for thorough preparation for the doctor's degree, and in all of them the facilities are excellent for work leading to the master's degree. All the courses named are well equipped for graduate instruction. Laboratories and libraries are ample for this purpose. Especial opportunity is given for research and original investigation.*

Anatomy.
Ancient Languages.
Bacteriology.
Bacteriology and Pathology.
Biochemistry.
Botany.
Chemistry.
Economics and Commerce.
Education.
Industrial Engineering.
Engineering Mechanics.
Engineering, Civil.
Engineering, Electrical.
Engineering, Mechanical.
Engineering, Mining.
English Language and Literature.
Entomology.
Fine Arts.

Geology and Mineralogy.
Germanic Languages and
Literatures.
Hispanic Languages and
Literature.
History and Political Science.
Home Economics.
Journalism.
Law.
Mathematics.
Pharmaceutical Chemistry.
Philosophy and Psychology.
Physics and Astronomy.
Physiology and Pharmacology.
Romance Languages and
Literatures.
Sociology.
Zoölogy.

* For description of equipment of the departments, see College Section.

DESCRIPTION OF COURSES.

ANATOMY.

Professors: COGHILL, TRACY.
Assistant Professor: SHEPPARD.

Candidates for advanced degrees who major in anatomy are required to present for entrance into courses 100 to 107, inclusive, the equivalent in biological training of zoölogy 1 or 2 and 3, and anatomy 1, 2, 3, 4, 7, 8, and 9. A reading knowledge of French or German also is essential. Students who are majoring in other departments may enroll in courses 150 to 158.

100.—COMPARATIVE NEUROLOGY. The nervous system of vertebrates from the point of view of correlation of structure and function in development and evolution. Both semesters, by appointment. Coghill.

104.—ADVANCED ANATOMY. This course is designed for students who wish particularly to acquire anatomical technique of a special nature. Time and credit to be determined. Coghill, Tracy, Sheppard.

105.—RESEARCH IN ANATOMY. The investigation of anatomical problems selected by the student with the approval of the professor in charge. Both semesters. Time and credit to be determined. Coghill, Tracy, Sheppard.

106.—ADVANCED EMBRYOLOGY. Morphology, physiology and physical chemistry of germ cells, cell differentiation in the development of the elementary tissues and their repair, tumor cell differentiation, regeneration, experimental embryology and developmental mechanics. Both semesters, by appointment. Tracy.

107.—SENSE ORGANS. A survey of the receptors of animals, with special emphasis upon the correlation of the structural development of the sense organs of vertebrates with the development of behavior. Both semesters, by appointment. Sheppard.

151-154.—HUMAN DISSECTION. A complete dissection of all structures. Coghill, Tracy, Sheppard and Assistants.

Course 151.—Dissection of the upper extremity. 2½ hours credit. Fee, \$5.

Course 153.—Dissection of the lower extremity. 2½ hours credit. Fee, \$5.

Course 152.—Dissection of the lower extremity. 2½ hours credit. Fee, \$10.

Course 154.—Dissection of head and neck. 3½ hours credit. Fee, \$10.

156.—TOPOGRAPHICAL ANATOMY. A laboratory course in human anatomy, including dissections, study of models, preparations and cross sections. The practical phases are emphasized. Course 1, 2, 3, and 4 are prerequisites. First semester. One credit. Fee, \$5.

Sheppard and Assistants.

157.—HISTOLOGY AND SPLANCHNOLOGY. A systematic study of the tissues and organs of the body, with introductory emphasis on the structure and function of the cell. Five hours credit. Fee, \$7.50.

Tracy, Foster, Brown.

158.—EMBRYOLOGY AND EMBRYOGENY. A study particularly of the germ layers and the development of the organs of the body with the aid of serial sections, dissections and models. Two hours credit. Fee, \$3.

Coghill, Foster, Brown.

159.—NEUROLOGY. A study of the central nervous system by means of dissections and microscopic methods, particularly with reference to the better-known nerve centers and conduction paths. Three hours credit. Fee, \$5. Coghill, Foster, Brown.

160.—ADVANCED ANATOMY. By appointment. This course is open, by appointment, to students who are prepared to work upon special anatomical subjects with a considerable degree of independence.

Coghill, Tracy, Sheppard.

ANCIENT LANGUAGES.

Professors: WILCOX, WALKER (Head of Department).

Associate Professors: STERLING, OLIVER, BRANDT.

LATIN.

100.—THE TOPOGRAPHY OF ROME. Two hours credit. Second semester, at 1:30. Lectures and reading. Illustration by the use of photographs and stereopticon. Each member of the class will present written reports on subjects investigated by himself. Oliver.

101.—INVESTIGATION IN ROMAN POLITICAL INSTITUTIONS. Two to five hours credit. First or second semester, by appointment. Given only after or in connection with course 162. This course will be conducted by additional lectures, and by additional investigations by members of the course. The master's thesis may be worked up in connection with this course. Brandt.

102.—LATIN EPIGRAPHY. Three hours credit. Second semester, at 3:30. This course has as its object an acquaintance with the forms and subject matter of Latin inscriptions. Members will be assigned investigations of the contributions of epigraphy to political, constitutional, and economic history, and to other fields. Brandt.

103.—INVESTIGATION IN LATIN EPIGRAPHY. Two to five hours credit. By appointment. Given only in connection with course 102. Additional investigation of special topics will be expected of members of the course. Brandt.

104.—ELEMENTARY SANSKRIT. Three hours credit. This course is designed especially for classical students, but may be taken with profit by advanced students of any language. It includes the elements of the language and the reading of easy texts. Special emphasis is given to phonetic and syntactic phenomena which throw light on the grammar of Latin and Greek. (Not given in 1919-'20.)

105.—COMPARATIVE GRAMMAR. Three hours credit. First semester, at 2:30. This course gives a description and history of the Latin sounds and inflections, supplemented by a comparison of Latin with the related languages, Greek, Sanskrit, and German, to illustrate linguistic principles existing in all Indo-European languages. (Not given in 1919-'20.)

106.—SEMINAR IN SYNTAX. Three or five hours credit. First semester, at 9:30. Walker.

107.—SEMINAR (continued). Three or five hours credit. Second semester, at 9:30. A subject for the thesis required of all candidates for the degree of master of arts is expected to present itself in the course of the work, and in the second term a portion of the time may be devoted to the working up of that subject. Walker.

150.—ADVANCED LATIN COMPOSITION. Two hours credit. Second semester. Walker.

151.—PLAUTUS. Two hours credit. Second semester, at 8:30.

Brandt.

152.—VERGIL'S ECLOGUES AND GEORGICS. (Not given in 1920-'21.)

153.—CATULLUS, TIBULLUS, AND PROPERTIUS. Two hours credit. (Not given in 1920-'21.)

154.—PLINY'S LETTERS. Two hours credit. First semester. Walker.

155.—HORACE (SATIRES AND EPISTLES). Two hours credit. (Not given in 1920-'21.)

156.—LUCRETIUS. Three hours credit. (Not given in 1920-'21.)

157.—THE ANNALS OF TACITUS. Three hours credit. Second semester, at 2:30. Walker.

158.—JUVENAL. Three hours credit. (Not given in 1920-'21.)

159.—LITERATURE OF THE EMPIRE. Three hours credit. First semester, at 9:30. Oliver.

160.—CÆSAR'S GALLIC CAMPAIGNS. Three hours credit. Second semester. Walker.

161.—VERGIL. Three hours credit. (Not given in 1920-'21.)

162.—ROMAN POLITICAL INSTITUTIONS. Three hours credit. (Not given in 1920-'21.)

163.—LATIN POETRY IN TRANSLATIONS. Three hours credit. Second semester. Brandt.

187.—TEACHERS' COURSE IN LATIN. Three hours credit. First semester. Walker.

GREEK.

173.—HOMER'S ILIAD. Three hours credit. First semester. Brandt.

174.—PLATO'S GORGIAS OR REPUBLIC. Three hours credit. Second semester. Sterling.

175.—LYRIC POETRY. Two hours credit. Second semester. Brandt.

176.—GREEK COMEDY. Two hours credit. First semester. Sterling.

177.—HOMER'S ODYSSEY. Three hours credit. (Not given in 1920-'21.)

178.—ALEXANDRIAN LITERATURE. Three hours credit. (Not given in 1920-'21.)

179.—THUCYDIDES. Two hours credit. First semester. (Not given in 1920-'21.)

180.—ARISTOTLE. Two hours credit. Second semester. (Not given in 1920-'21.)

COURSES WHICH REQUIRE NO KNOWLEDGE OF THE GREEK LANGUAGE.

185.—GREEK POETRY IN TRANSLATIONS. Three hours credit. First semester. Brandt.

186.—THE GREEK DRAMA IN TRANSLATIONS. Two hours credit. Second semester. Brandt.

188.—GREEK PROSE MASTERPIECES IN TRANSLATIONS. Three hours credit. Second semester. Sterling.

189.—GREEK ARCHITECTURE. Two hours credit. First semester. Brandt.

190.—GREEK SCULPTURE AND PAINTING. Three hours credit. Second semester. Brandt.

BACTERIOLOGY.

Professor: SHERWOOD.

Instructors: TREECE, DOWNS, McNAUGHT.

100.—RESEARCH IN BACTERIOLOGY. Two or more hours credit. By appointment. Graduates taking this course must satisfy the instructor that they are able to carry on original investigation in the special field selected. Sherwood and the instructor directly concerned.

- 150.—GENERAL BACTERIOLOGY. Five hours credit. Both semesters.
Sherwood, Treece and Downs.
- 153.—BACTERIOLOGY OF FOODS AND WATER. Five hours credit. Second semester.
Treece, McNaught.
- 154.—SPECIAL METHODS IN BACTERIOLOGY. Five hours credit. First semester.
Downs, McNaught.
- 155.—BACTERIOLOGY OF SOILS. Two hours credit. Second semester.
Offered 1919-'20. McNaught.
- 157.—IMMUNITY. Five hours credit. Second semester.
Downs, McNaught.
- 158.—PATHOGENESIS. Five hours credit. First semester. Offered 1919-'20.
Sherwood.
- 160.—BACTERIOLOGICAL JOURNAL. One hour credit. Both semesters, by appointment.
Sherwood.
- 161.—SPECIAL PROBLEMS IN BACTERIOLOGY. Two to ten hours credit. Either semester, by appointment.
Sherwood and the instructor directly concerned.

BACTERIOLOGY AND PATHOLOGY (Rosedale).

(MEDICAL.)

Professor: WAHL.
Associate Professor: BLACK.

- 101.—ADVANCED BACTERIOLOGY. By appointment. Includes the more difficult technical procedure and problems of immunity, serology, vaccines, etc.
Wahl, Black.
- 102.—PATHOLOGY. By appointment. Research work in the various branches of pathology and immunology.
Wahl, Black.
- 103.—SPECIAL PATHOLOGY. Three hours credit. First semester, Monday and Wednesday, 1 to 4. Recitations and laboratory. This course takes up the study of special pathology as illustrated by gross and microscopic specimens, and animal experimentation.
Wahl.

BIOCHEMISTRY.

Professor: NELSON.
Assistant Professor: ———.

- 100.—BIOLOGICAL CHEMISTRY. Four or six hours credit. A survey of the field of biochemistry, lectures, recitations and laboratory work.
Nelson and assistants.
- (For the present this course will continue throughout the year, 2 or 3 hours credit being allowed each semester).
- 101.—RESEARCH IN BIOLOGICAL CHEMISTRY. Two or more hours credit. Throughout the year. By appointment.
Nelson and ———.
- 102.—BIOCHEMICAL SEMINAR (for graduates only). Weekly meetings. Prerequisite, a reading knowledge of French and German. Discussion and reports on current biochemical literature.
Nelson.
- 150.—COLLOID CHEMISTRY. Two hours credit. First semester. A study of colloids and the colloidal state of matter. Special emphasis is laid on the application of colloid chemistry to problems in biochemistry. Open to Senior and Graduate students.
Nelson.

BOTANY.

Professor: STEVENS.*Associate Professor:* MIX.*Assistant Professor:* CHARLES.

100.—MORPHOLOGY AND PHYSIOLOGY OF THE PLANT CELL. Five or ten hours credit. First and second semester, or both semesters, by appointment. Fee, \$1. A study of cell characters, adaptation to specific functions, and behavior under varying environment; nuclear and cell division; reproduction. Stevens.

101.—PLANT ECOLOGY. Three hours, five hours, or ten hours credit. Throughout the year, by appointment. The relation of plants to their environment. Field work and reading. Warming's, Schimper's, Clements' and Cowles' texts, and current literature. Stevens.

102.—RESEARCH IN PLANT ANATOMY. Both semesters, by appointment. Fee, \$1. Stevens.

104.—BOTANICAL CONFERENCE. One hour credit. By appointment. Review and discussion of current botanical work. Reports on assigned subjects.

150.—SYSTEMATIC BOTANY. Five hours credit. First semester. Fee, \$1. Charles.

155.—MORPHOLOGY OF THALLOPHYTES. Three hours or five hours credit. Second semester, by appointment. Fee, \$1. Charles.

156.—MORPHOLOGY OF FUNGI. Three hours credit. Second semester. Fee, \$2. Charles.

157.—MORPHOLOGY OF BRYOPHYTES AND PTERIDOPHYTES. Three hours credit. First semester. Fee, \$2. Charles.

158.—PROBLEMS IN THE MORPHOLOGY OF SPERMATOPHYTES. Five hours credit. First or second semester, or both, by appointment. Fee, \$1. Stevens.

159.—PROBLEMS IN THE MORPHOLOGY OF THALLOPHYTES AND ARCHGONIATES. Five hours credit. First or second semester, by appointment. Fee, \$1. Charles.

160.—AGRICULTURE. Three hours credit. First semester. Fee, \$2. Mix.

161.—TREES AND SHRUBS. Three hours credit. Second semester. Stevens.

162.—PLANT PATHOLOGY. Five hours credit. First semester. Fee, \$2. Mix.

163.—METHODS IN PLANT PATHOLOGY. Five hours credit. Second semester. Fee, \$2. Mix.

164.—PROBLEMS IN PLANT PATHOLOGY. Three to five hours credit. Both semesters. Fee, \$1. Mix.

CHEMISTRY.

Professors: BAILEY, CADY, DAINS, ALLEN.*Associate Professor:* STRATTON.*Assistant Professors:* LONG, ESTES, BREWSTER, ELSEY, ROWLAND.

PREREQUISITES. Students who expect to take a graduate major in chemistry and others who wish to do advanced work for graduate credit must present not less than the substantial equivalent of undergraduate courses 2, 3, 51 and 61 or 62 before beginning their graduate work.

Fees. In laboratory courses a fee sufficient to cover expenses will be charged.

100.—ADVANCED QUALITATIVE AND SPECTRAL ANALYSIS.* Three hours

* In the Chemistry department, starred courses above 149 as well as courses from 100 to 149 are graduate only.

credit. Second semester, by appointment. This course covers the ordinary methods of qualitative analysis as applied to the rarer elements and compounds, as well as training in the use of the spectroscope and spectrograph in the qualitative and quantitative examination of substances. Cady.

101.—MICROCHEMICAL ANALYSIS. Two hours credit. Second semester, by appointment. A laboratory course in qualitative analysis, identifying the substances by means of the microscope. Prerequisite, course 51. Allen.

102.—ADVANCED TOPICS IN INORGANIC AND PHYSICAL CHEMISTRY. Two hours credit. Either semester. The subjects for 1920-'21 are: Chemistry of Nitrides, Carbides, Borides, etc.; the structure and transmutation of the atom. Cady, Elsey.

105.—RADIOCHEMISTRY AND RADIOACTIVITY. Three hours credit. Second semester, alternate years, by appointment. Lectures, recitations and laboratory experiments dealing with the chemistry of the radioelements, their relation to the periodic system, and the transformations. It is recommended that the course be preceded by course 153 in the Department of Physics. Cady.

110.—HISTORY OF CHEMISTRY. Two hours credit. Second semester. A course in the history of chemistry and the development of chemical theories. Lectures, library work, and the presentation of reports. The complete course requires two years, the first bringing the subject down to 1820 and the second from that time to date. Dains.

111.—CHEMICAL SEMINAR. One hour credit. Each semester, by appointment. A review of recent literature. Required of all graduate students majoring in chemistry.

First semester: Inorganic and physical chemistry. Cady.

Second semester: Organic chemistry and allied topics. Dains.

152.—QUANTITATIVE ANALYSIS. Two, three, or five hours credit. Either semester. Allen, Rowland.

152A.—SANITARY WATER ANALYSIS. Three hours credit. Second semester, 10 to 12. Prerequisite, course 51. Allen, Rowland.

152B.—BOILER WATER ANALYSIS. Two hours credit. Second semester, 10 to 12. Prerequisite, course 51. Allen, Rowland.

152C.—GAS ANALYSIS. Two hours credit. First semester, by appointment. Prerequisite, course 51. Allen.

152D.—FOOD ANALYSIS. Three hours credit. Both semesters, by appointment. Prerequisite, courses 51 and 61 or 62. Long.

152E.—OIL ANALYSIS. Two hours credit. First semester, by appointment. Prerequisite, course 51. Allen.

152F.—IRON AND STEEL ANALYSIS. Two hours credit. Second semester, by appointment. Prerequisite, course 51. Allen.

152G.—THE CHEMISTRY OF MILLING AND BAKING. Two hours credit. Second semester, by appointment. Prerequisites, courses 51 and 61 or 62. Long.

152H.—INDUSTRIAL ORGANIC ANALYSIS. Two hours credit. Second semester, by appointment. Prerequisites, courses 51 and 61 or 62. Estes.

152I.—WET ASSAYING. Two hours credit. Second semester, by appointment. Prerequisite, course 51. Allen, Rowland.

152J.—ELECTROLYTIC ESTIMATION OF METALS. Two hours credit. Second semester, by appointment. Prerequisite, course 51. Allen.

153.—ASSAYING AND METALLURGICAL ANALYSIS. Three or five hours credit. Second semester, 1 to 5, and by appointment. Estes.

155.—ANALYTICAL CHEMISTRY RESEARCH.* Five hours credit. Both semesters. Bailey, Allen.

157.—PHYSICOCHEMICAL METHODS OF ANALYSIS. First semester, by appointment. This course furnishes a training in the use of methods of physical chemistry in analysis. The experiments will be carried out with the aid of the polariscope, refractometer, colorimeter, and nephelometer. Conductivity measurements and methods adapted from the phase law will also be used. Cady.

163.—ADVANCED ORGANIC CHEMISTRY. Five hours credit. Second semester, M. W. F., at 9:30; laboratory by appointment. Dains, Brewster.

164.—ORGANIC PREPARATIONS (Advanced).* Five hours credit. Either semester, by appointment. Must be preceded by course 163 or its equivalent. A study of organic synthetical methods and ultimate organic analyses. Dains, Brewster.

165.—ORGANIC CHEMISTRY.* Five hours credit. Either semester, by appointment. A research course. This course offers, to those who have the proper preparation, a chance for extended study and original investigations. Dains.

166.—ADVANCED TOPICS IN ORGANIC CHEMISTRY.* Two hours credit. First semester. Subjects to be discussed are as follows: 1919-'20, dyes; 1920-'21, nitrogen derivatives; 1921-'22, terpenes and sugars. Dains.

167.—ADVANCED TOPICS IN ORGANIC CHEMISTRY. Two hours, second semester. Dains, Brewster.

170.—PHYSICAL CHEMISTRY AND ELECTROCHEMISTRY. Five hours credit. Second semester at 10:30. Cady.

171.—PHYSICAL CHEMISTRY (General). Five hours credit. First semester, at 10:30. Cady.

172.—ELECTROCHEMISTRY.* Five hours credit. Second semester, by appointment. A laboratory course on the reactions involving oxidation and reduction, electrosyntheses and decompositions, the preparation of chemicals, the reduction of metals from their ores, and the purification of metallurgical products. Prerequisite, course 170. Elsey.

173.—CHEMICAL STATICS AND DYNAMICS.* Three hours credit. Second semester, by appointment. A study of the manner in which chemical reactions take place, and the equilibria which result, from the standpoint of reaction velocities. Prerequisites: General physics, calculus, physical chemistry 170 or 171, and organic chemistry. Cady.

174.—THE PHASE LAW.* Two hours credit. Second semester, by appointment. A study of chemical equilibria from the standpoint of the phase law of Gibbs. Prerequisite, course 171. Cady.

175.—PHYSICAL CHEMISTRY OF COLLOIDS. Two hours credit, by appointment. A study of colloids and their application. Cady.

176.—PHYSICAL CHEMISTRY.* Five hours credit. Either semester, by appointment. A research course extending over two or more semesters. An opportunity is offered, to those who are sufficiently advanced, to carry on investigations in this branch of chemistry. Cady.

180.—INORGANIC INDUSTRIAL CHEMISTRY. Three hours credit. Second semester, at 11:30. Allen.

181.—ORGANIC INDUSTRIAL CHEMISTRY. Three hours credit. First semester, at 9:30. Allen.

182.—INDUSTRIAL CHEMISTRY RESEARCH.* Five hours credit. Both semesters. Allen.

* In the Chemistry department, starred courses *above* 149 as well as courses from 100 to 149 are graduate only.

- 190.—METALLURGY I. Three hours credit. First semester, at 11:30.
Rowland.
- 191.—METALLURGY II. Three hours credit. Second semester, at 9:30.
Rowland.
- 192.—METALLURGICAL LABORATORY. Two hours credit. First semester, by appointment.
Estes.
- 193.—GENERAL METALLURGY. Two hours credit. First semester, at 11:30.
Rowland.
- 195.—METALLOGRAPHY.* Two hours credit. Second semester, by appointment. Laboratory work and conferences.
Estes.
- 199.—TEACHERS' COURSE IN CHEMISTRY. Two hours credit. One hour each semester, by appointment.
Stratton.

The profession of chemistry and chemical engineering is affording an increasing number of openings for men with a longer and more thorough training than is given in the four-year college or chemical engineering course. For this reason the department would call attention to the opportunities for graduate work in this institution leading to the degree of master of arts or master of science.

Without designating arbitrarily such a course, the department would suggest the following outline for the thirty hours of graduate work:

First: A minor, of not over ten hours, to be chosen from the fields of physics, geology, engineering, mathematics, or natural science.

Second: The major subject—chemistry, twenty hours. This requirement is to be satisfied by the election of a number of carefully selected graduate courses, a considerable portion of which should be classroom rather than laboratory work, and the completion of a thesis, requiring not over one-third of the student's time, which will demand the solution of some research problem along the line of pure or applied chemistry. This latter is an essential requirement for the degree, since experience of this nature is of special value for one going into practical scientific work.

ECONOMICS AND COMMERCE.

Professor: BOYNTON.

Associate Professors: DUFFUS, ISE.

Assistant Professors: FERGUSON, JENSEN, NEWMAN.

- 100.—SEMINAR. Two to ten hours credit. Either semester, by appointment. This is a research course for mature students. Applicants for admission to the seminar must satisfy the instructors of their preparation and ability to undertake original investigation. Each student must pursue a definite line of work under the personal direction of one of the instructors.
- 150.—MONEY. Three hours credit. First semester, at 10. Boynton.
- 151.—BANKING. Three hours credit. Second semester, at 10.
Boynton.
- 152.—BANKING PRACTICE. Two hours credit. First semester, at 10.
Boynton.
- 153.—INVESTMENTS. Two hours credit. Second semester, at 10.
Boynton.
- 154.—BUSINESS ORGANIZATION AND MANAGEMENT. Three hours credit.
Ferguson.
- 155.—HISTORY AND ORGANIZATION OF TRANSPORTATION. Two hours credit. First semester, at 11.
Boynton.
- 156.—RAILWAY RATES AND REGULATION. Two hours credit. Second semester, at 11.
Boynton.

* In the Chemistry department, starred courses *above* 149 as well as courses from 100 to 149 are graduate only.

- 157.—BUSINESS FINANCE. Three hours credit. Second semester, at 9.
Ferguson.
- 159.—PUBLIC UTILITIES. Two hours credit. Second semester, at 9.
Newman.
- 160.—INSURANCE. Three hours credit. Second semester, at 8.
Duffus.
- 161.—PUBLIC FINANCE I. Three hours credit. First semester, at 8.
Jensen.
- 162.—PUBLIC FINANCE II. Three hours credit. Second semester, at 8.
Jensen.
- 164.—ACCOUNTING I. Three hours credit. First semester, at 2.
Ferguson.
- 165.—ACCOUNTING II. Three hours credit. Second semester, at 2.
Ferguson.
- 166.—COST ACCOUNTING. Two hours credit. First semester, at 2.
- 167.—ADVANCED ACCOUNTING AND AUDITING. Two hours credit. Second semester, at 2.
- 168.—STATISTICS. Three hours credit. Second semester, at 9.
Jensen.
- 169.—BUSINESS LAW. Three hours credit. Second semester, at 11.
Ferguson.
- 170.—LABOR PROBLEMS. Two hours credit. First semester, at 8.
Duffus.
- 171.—LABOR LEGISLATION. Two hours credit. Second semester, at 8.
Duffus.
- 172.—IMMIGRATION PROBLEMS. Two hours credit. Second semester, at 10.
Duffus.
- 173.—MODERN ECONOMIC REFORM. Three hours credit. Second semester, at 10.
Ise.
- 180.—ECONOMICS OF AGRICULTURE. Three hours credit. Second semester, at 1.
Ise.
- 181.—MARKETS AND MARKETING. Three hours credit. First semester, at 11.
Ise.
- 190.—ELEMENTS OF ECONOMICS. Three hours credit. Second semester, at 1. (Not open to students who major in economics.)
Ise.
- 191.—HISTORY OF ECONOMIC THOUGHT. Two hours credit. First semester, at 9.
Ise.
- 192.—ADVANCED PRINCIPLES OF ECONOMICS. Three hours credit. Second semester, at 9.
Ise.

EDUCATION.

Professors: KELLY, OLIN, JOHNSON, SCHWEGLER, KENT,
BUCKNER, SMITH.

Associate Professors: NUTT, CARTER, EIKENBERRY.

Assistant Professors: WATSON, FAULKNER, SMART.

- 100.—SEMINAR IN EDUCATIONAL PSYCHOLOGY. Two hours credit. Both semesters, by appointment.
Carter.
- 101.—SEMINAR IN MENTAL DEFECTS. Two hours credit. Both semesters, by appointment.
Schwegler.
- 102.—SEMINAR IN EDUCATIONAL SYSTEMS OF HERBART AND FROEBEL. Two hours credit. First semester, by appointment.
Olin.
- 103.—SEMINAR IN ORIGIN AND EARLY DEVELOPMENT OF UNIVERSITIES. Two hours credit. Second semester, by appointment.
Olin.
- 104.—SEMINAR IN EDUCATIONAL ADMINISTRATION. Two hours credit. Both semesters, by appointment.
Kent, Johnson, and Kelly.

- 150.—HISTORY OF ANCIENT AND MEDIAEVAL EDUCATION. Three hours credit. First semester, 8:30 and 3:30. Olin.
- 151.—HISTORY OF MODERN EDUCATION. Three hours credit. First semester, at 2:30; second semester, at 8:30 and 3:30. Olin.
- 152.—EDUCATIONAL MEASUREMENTS AND STATISTICAL METHODS. Two hours credit. Second semester, at 2:30. Buckner.
- 153.—SOCIAL EDUCATION. Two hours credit. First semester, at 11:30. Smith.
- 154.—EDUCATIONAL CLINIC. Three hours credit. Second semester, by appointment. Schwegler.
- 155.—MENTAL MEASUREMENT OF SCHOOL CHILDREN. Three hours credit. First semester, at 9:30. Schwegler.
- 156.—VOCATIONAL EDUCATION. Three hours credit. First semester, at 10:30. Johnson.
- 157.—SCHOOL HYGIENE. Three hours credit. Second semester, at 3:30. Nutt.
- 158.—EDUCATIONAL MEASUREMENTS AND EXPERIMENTATION. Two hours credit. Second semester, at 3:30. Buckner.
- 159.—EDUCATIONAL CLASSICS I. Two hours credit. First semester, at 10:30. Olin.
- 160.—EDUCATIONAL CLASSICS II. Two hours credit. Second semester, at 10:30. Olin.
- 161.—HIGH-SCHOOL ADMINISTRATION. Three hours credit. Both semesters, at 8:30. Johnson.
- 162.—THE JUNIOR HIGH SCHOOL. Three hours credit. Second semester, at 8:30. Kent.
- 163.—EDUCATION IN AMERICA. Three hours credit. Second semester, at 9:30. Olin.
- 164.—EDUCATIONAL PSYCHOLOGY. Three hours credit. Second semester, at 1:30. Carter.
- 165.—EXPERIMENTS IN METHODS OF TEACHING. Three hours credit. First semester, at 11:30. Carter.
- 166.—STATISTICAL METHODS APPLIED TO EDUCATION. Three hours credit. First semester, at 3:30. Buckner.
- 167.—SUPERVISED STUDY. Two hours credit. First semester, at 11:30. Carter.
- 168.—PRINCIPLES OF EDUCATION. Three hours credit. First semester, at 11:30. Schwegler.
- 169.—TECHNIQUE OF TEACHING. Two hours credit. First semester, at 3:30. Nutt.
- 170.—SCHOOL SURVEYS. Three hours credit. First semester, at 8:30. Buckner.
- 171.—THE ABNORMAL CHILD. Three hours credit. First semester, at 10:30. Schwegler.
- 172.—SUPERVISION OF INSTRUCTION. Two hours credit. First semester, at 9:30. Kent.
- 173.—CITY SCHOOL ADMINISTRATION. Two hours credit. Second semester, at 9:30. Kent.
- 174.—EDUCATIONAL ORGANIZATION AND ADMINISTRATION. Three hours credit. First semester, at 8:30. Kent.
- 177.—PRACTICAL PROBLEMS OF PUBLIC-SCHOOL EDUCATION. Two to three hours credit. Both semesters, Saturday, at 9.
- 178.—ADOLESCENCE. Three hours credit. Both semesters, at 10:30. Schwegler.

179.—MORAL EDUCATION. Two hours credit. Second semester, at 11:30. Schwegler.

TEACHERS' COURSES.

180.—TEACHERS' COURSE IN PHYSICAL SCIENCES. Three hours credit. Second semester, by appointment. Watson.

181.—TEACHERS' COURSE IN BIOLOGICAL SCIENCES. Three hours credit. Both semesters, at 11:30. Eikenberry.

183.—TEACHERS' COURSE IN HOME ECONOMICS. Three hours credit. First semester, at 9:30. Sprague.

184.—TEACHERS' COURSE IN NORMAL TRAINING. Three hours credit. First semester, at 3:30. Nutt.

185.—TEACHERS' COURSE IN GERMAN. Three hours credit. Second semester, at 9:30. Engel.

186.—TEACHERS' COURSE IN ENGLISH. Three hours credit. First semester, at 2:30. Faulkner.

187.—TEACHERS' COURSE IN LATIN. Three hours credit. First semester, at 2:30. Walker.

188.—TEACHERS' COURSE IN FRENCH. Three hours credit. First semester, by appointment. Neuen Schwander.

189.—TEACHERS' COURSE IN MATHEMATICS. Three hours credit. Second semester, at 11:30. Mitchell.

190.—TEACHERS' COURSE IN SPANISH. Three hours credit. First semester, by appointment. Gardner.

191.—TEACHERS' COURSE IN HISTORY. Three hours credit. Second semester, at 2:30. Melvin.

196.—TEACHERS' COURSE IN SOCIAL SCIENCES. Three hours credit. Second semester, at 10:30. Smith.

199.—TEACHERS' COURSE IN CHEMISTRY. Two hours credit. Second semester, by appointment. Stratton.

INDUSTRIAL ENGINEERING.

Professor: WALKER.

Associate Professor: SLUSS.

151.—INDUSTRIAL ENGINEERING II. Three hours credit. First semester. Walker and Sluss.

152.—INDUSTRIAL ADMINISTRATION. Three hours credit. Second semester. Walker.

ENGINEERING MECHANICS.

Professor: RICE (H. A.).

Assistant Professor: JONES (J. O.).

154.—ENGINEERING MATERIALS. Five hours credit. First semester, by appointment. Rice.

155.—HYDRAULICS. Three hours credit. Either semester. J. O. Jones.

158.—HYDRAULIC POWER. Three hours credit. First semester, by appointment. J. O. Jones.

ENGINEERING—Civil.

Professors: WILLIAMS (C. C.), RICE (H. A.).

Associate Professors: HASKINS, MCNOWN.

100.—STRUCTURAL DESIGNING. Five hours credit. First or second semester, by appointment. An advanced course covering cantilever, swing and suspension bridges, skeleton frames for buildings, train-shed roofs, standpipes, and elevated tanks. This course is designed to follow

course 162. Lectures, recitations, and detail designing in the drawing room. Rice.

101.—RESEARCH COURSE. A course of investigation of some matter directly related to civil engineering. This course should run through the year, making ten hours' credit. Arrangements for the course should be made with Professor Williams or Professor Rice.

159.—MAINTENANCE OF WAY. Three hours credit. Second semester. Williams.

160.—RAILWAY TERMINAL STRUCTURES. Five hours credit. Second semester. An extended study of the design of retaining walls, water tanks, coal bunkers and coaling stations, ore bins, grain bins and elevators, turntables, transfer tables, train sheds, ash pits, chimneys, and other accessory structures. Williams.

162.—BRIDGE DESIGNING. Four hours credit. Second semester. Rice.

165.—REINFORCED CONCRETE. Three hours or five hours credit. First or second semester. Rice.

167.—HIGHWAY TRANSPORTATION. Two hours credit. Second semester. A study of motor truck performance and the economics of transportation over improved highways. Prerequisite, Civil Engineering 5 and 57. McNown.

168.—PAVEMENTS. Three hours credit. Second semester. Lectures and laboratory. A study of road-building rocks, bituminous materials, brick and brick clays, wood blocks, fillers, and the economical selection of type of pavement. McNown.

169.—FOUNDATIONS. Three hours credit. Second semester. A study in the design and construction of ordinary and subaqueous foundations. Williams.

172.—SANITARY ENGINEERING. Five hours credit. Second semester, by appointment. Public sanitation, particularly with reference to the water-borne infectious diseases. Influence of good sewerage, drainage and water supply upon the health of communities. Visits to sanitary engineering works. State control of public water supplies and population of streams. Prerequisites, courses in water supply and sewerage. Lectures, recitations, and reading. Haskins.

ENGINEERING—Electrical.

Professor: SHAAD.

Associate Professor: JOHNSON (F. E.).

100.—POWER TRANSMISSION AND ELECTRIC RAILWAYS. Four hours credit. First semester, by appointment. An advanced course in these subjects, consisting of lectures, assigned readings, and problems, special attention being paid to the engineering features of long-distance power transmission and the electrification of trunk-line railways. Shaad.

157.—ELECTRIC LIGHTING. Three hours credit. Second semester. Johnson.

158.—ELECTRIC POWER TRANSMISSION. Five hours credit. Second semester. Shaad.

162.—CENTRAL STATIONS. Three hours credit. Second semester. Shaad.

163.—ADVANCED ELECTRICAL LABORATORY. Five hours credit. Second semester. Johnson.

ENGINEERING—Mechanical.

Professor: SIBLEY.
Associate Professor: SLUSS.
Assistant Professor: DENT.

100.—ADVANCED ENGINEERING LABORATORY. Five hours credit. Both semesters, by appointment. Research work in some line connected with power development, fuels, lubrication or refrigeration, as may be selected in consultation with the instructor. Sluss.

101.—ADVANCED DESIGNING. Five hours credit. Both semesters, by appointment. The course calls for a complete design in all details of some machine or of a plant for manufacturing or power development purposes. Steam and gas machinery and systems of power transmission are given particular attention. Sibley.

102.—RESEARCH COURSE. Five hours credit. Each semester, by appointment. A full presentation of some engineering subject to be selected in consultation with the instructor in charge. It may be a subject which is being treated in course 100 or 101. Sibley, Sluss.

103.—ADVANCED THERMODYNAMICS. Three hours credit. First semester, by appointment. An advanced course based on the mathematical theory of heat interchanges. Open to those who have taken the undergraduate course in the School of Engineering, or its equivalent. Dent.

ENGINEERING—Mining.

Professor: YOUNG.
Associate Professor: GRIDER.

163.—MINE PLANT AND MILL DESIGN. Three hours credit. Second semester. Grider.

164.—MINING ENGINEERING. Three hours credit. Either semester. Young.

166.—ADVANCED ORE DRESSING. Four hours credit. Second semester. Grider.

167.—MINERAL LAND SURVEYING. Three hours credit. First semester. Grider.

171.—ECONOMIC HISTORY OF THE MINERAL INDUSTRIES. Five hours credit. Senior and graduate students. First semester. A study of developments in the United States from the earliest recorded events to the present. Young.

172.—ECONOMIC HISTORY OF COAL AND IRON. Three hours credit. Senior and graduate students. Second semester. A study of the developments of these industries in the United States, and their effect on the economic life of the country. Young.

173.—RESEARCH COURSE. Five hours. Senior and graduate students. Each semester. A supervised investigation of subjects directly related to the mineral industries. Young.

ENGLISH LANGUAGE AND LITERATURE.

Professors: DUNLAP, HOPKINS,* O'LEARY, WHITCOMB,* SISSON.
Associate Professors: JOHNSON, LYNN.
Assistant Professors: GARDNER,† BURNHAM.

REQUIREMENTS FOR MASTER'S DEGREE. (1) A schedule for the entire course for the master's degree must be approved by the department before work begins. (2) Three hours credit in Old English is required. (3) Fifteen of the total of thirty hours credit must be in strictly grad-

* Absent on leave, second semester, 1919-'20.

† Absent on leave, 1919-'20.

uate courses or investigation. (4) Six to ten hours credit will be allowed for work on the thesis.

103.—INTRODUCTION TO COMPARATIVE LITERATURE. Three hours credit. Second semester. Lectures on the general materials, methods, and purposes of Comparative Literature. Individual work according to the preparation and needs of the student. Whitcomb.

106.—ENGLISH PROSE OF THE EIGHTEENTH CENTURY. Three hours credit. First semester. The authors studied will be Swift, Addison, Steele, Johnson, Goldsmith, and Burke. Lectures, library work, and the preparation of a thesis. O'Leary.

107.—HISTORY OF ENGLISH CRITICISM. Two hours credit. Second semester. This course will be devoted to the general development of English criticism, or to some specialized field, according to the preparation and needs of the class. Whitcomb.

108.—LATER NINETEENTH CENTURY VERSE. Three hours credit. Second semester, twice a week. Special study of the poetry of Arnold, Fitzgerald, Clough, Swinburne, the Rossettis, and William Morris. A brief survey of the minor poets of the period and of contemporary verse. Johnson.

109.—HISTORY OF THE LITERATURE AND THE TEACHING OF RHETORIC IN ENGLISH. Two hours credit. First semester. Lectures, library reading and the preparation of a thesis. O'Leary.

110.—ENGLISH PROSODY. Two hours credit. Second semester. The history of English verse and verse forms. Whitcomb.

111.—EPIC POETRY. Three hours credit. First semester. Study of the form and subject matter of the epic, and of the general place of epic poetry in the history of English literature. Whitcomb.

114.—HISTORY OF THE ENGLISH LANGUAGE. Three hours credit. Second semester. After a study of the general principles of linguistic change and some study of Old English as a Germanic dialect, the development of the sounds, inflections, and syntax of English will be traced from old to modern times. Elementary Old English and a reading knowledge of German are prerequisite. Burnham.

115.—THE DEVELOPMENT OF ENGLISH PROSE. Two hours credit. First semester. A study of the important prose between 1350 and 1660, with a survey of the development of prose style. Sisson.

123 and 124.—SEMINAR. Both semesters, by appointment. Individual research by properly qualified students under the direction of the graduate committee. Designed in part for students preparing theses for the master's degree. Available divisions are the following:

(a) Literature: Historical or critical study. Three to five hours credit. Whitcomb, Johnson.

(b) Pedagogy: Problems of English teaching and supervision. Two to four hours credit. Hopkins.

(c) Language: Problems in the morphology and syntax of the English language. Three to five hours credit. Burnham.

150.—NARRATION AND DESCRIPTION. Three hours credit. First semester, at 8:30, 9:30, and 10:30. O'Leary, Lynn.

151.—NARRATION AND DESCRIPTION. Two hours credit. Second semester, at 8:30 and 9:30. O'Leary, Lynn.

152.—EXPOSITION. Two hours credit. First semester, at 9:30. Gardner.

153.—ADVANCED ARGUMENT. Three hours credit. Second semester, at 2:30. Hopkins.

155.—LITERARY CRITICISM. Two hours credit. First semester, at 1:30. Hopkins.

- 156.—VERSIFICATION. One hour credit. First semester, Monday, at 3:30. Hopkins.
- 157.—ESSAY WRITING. Two hours credit. Second semester, at 10:30. O'Leary.
- 158.—PROSE INVENTION. Two hours credit. Second semester, at 1:30. Hopkins.
- 160.—ELEMENTARY OLD ENGLISH. (Anglo-Saxon.) Three hours credit. First semester, at 3:30. Burnham.
- 161.—BEOWULF. Two hours credit. First semester, by appointment. Burnham.
- 162.—MIDDLE ENGLISH. Two hours credit. First semester, at 3:30. Burnham.
- 163.—MIDDLE ENGLISH. Three hours credit. Second semester, at 8:30. Burnham.
- 164.—ADVANCED OLD ENGLISH. Two hours credit. Second semester, by appointment. Burnham.
- 168.—MODERN ENGLISH GRAMMAR. Two hours credit. First semester, at 2:30. Burnham.
- 170.—ENGLISH USAGE. Two hours credit. Second semester, at 2:30. Burnham.
- 171.—AMERICAN LITERATURE. Three hours credit. First semester, at 1:30. Hopkins.
- 172.—AMERICAN LITERATURE. Three hours credit. Second semester, at 1:30. Hopkins.
- 173.—ENGLISH LITERATURE OF THE EIGHTEENTH CENTURY. Two hours credit. First semester, at 9:30. O'Leary.
- 174.—ENGLISH LITERATURE OF THE EIGHTEENTH CENTURY. Three hours credit. Second semester, at 9:30. O'Leary.
- 175.—VICTORIAN LITERATURE, exclusive of the novel and Tennyson and Browning. Two hours credit. First semester, at 10:30. Dunlap.
- 176.—ENGLISH LITERATURE OF THE NINETEENTH CENTURY. Three hours credit. First semester, at 11:30. Dunlap.
- 177.—ENGLISH LITERATURE OF THE NINETEENTH CENTURY. Three hours credit. Second semester, at 9:30. Dunlap.
- 178.—SHAKSPERE. Three hours credit. Both semesters, at 10:30. Dunlap.
- 179.—CHAUCER. Three hours credit. First semester, at 9:30. Dunlap.
- 180.—SHELLEY AND KEATS. Two hours credit. Second semester, at 11:30. Dunlap.
- 181.—BROWNING AND TENNYSON. Two hours credit. Second semester, at 10:30. Lynn.
- 182.—CARLYLE AND EMERSON. Two hours credit. Second semester, at 8:30. Johnson.
- 183.—MILTON AND HIS CONTEMPORARIES. Two hours credit. Second semester, at 8:30. Johnson.
- 184.—THE MODERN ENGLISH LYRIC. Two hours credit. First semester, at 3:30. Whitcomb.
- 185.—TECHNIC AND THEORY OF THE DRAMA. Two hours credit. First semester, at 2:30. Whitcomb.
- 186.—HISTORY OF THE ENGLISH DRAMA. Three hours credit. First semester, at 8:30. Johnson.
- 187.—HISTORY OF THE ENGLISH DRAMA. Three hours credit. Second semester, at 2:30. Whitcomb.

188.—THE ENGLISH NOVEL. Three hours credit. Second semester, at 11:30. Dunlap.

189.—THE ENGLISH ESSAY. Two hours credit. Second semester, at 9:30. O'Leary.

ENTOMOLOGY.

Professor: HUNTER.

Associate Professor: HUNGERFORD.

100.—ORIGINAL INVESTIGATION. Five hours credit. Throughout the year, by appointment. Experimental work in parthenogenesis. Fee, \$1. Hunter.

101.—FIELD ENTOMOLOGY, BIOLOGICAL SURVEY. Five hours credit. Throughout the year, including the Summer Session. The department is engaged in a survey of insect life in the state. This work will be resumed at the opening of the Summer Session. The course consists of a taxonomic and biologic study of all existing forms, investigations in their life histories, and relations to environments. Appointments on this survey are made through consultation with the department. Hunter.

102.—MORPHOLOGICAL DEVELOPMENT. Five hours credit. Throughout the year. Problems assigned with reference to the attainments of individual students. Fee, \$1.50. Hunter.

103.—ORCHARD LIFE AND FOREST LIFE. Five hours credit. Throughout the year. The State Entomological Commission is conducting a comprehensive and detailed survey of the insect life as it pertains to the orchards and forestry of the state. In this work special attention is given to statistical methods and detailed illustrations of distribution by means of maps and charts. A limited number of well-prepared students may receive appointments for credit on this work. Hunter.

104.—CONFERENCE. One hour credit. Throughout the year, by appointment. This course affords an opportunity for the presentation and discussion of current research in this branch of science. During the present year the subject for consideration is the influence of chemical and climatic stimuli upon developing forms. Hunter.

105.—ADVANCED TAXONOMY OF INSECTS. Five hours credit. Throughout the year, by appointment. Fee, \$1. Hunter.

151.—MORPHOLOGY OF INSECTS. Three hours credit. First semester, 10 to 12. Fee, \$1.50.

152.—SYSTEMATIC ENTOMOLOGY I. Two hours credit. First or second semester, 1 to 3. Fee, \$1. Hungerford.

153.—BIOLOGY OF THE ARTHROPODS. Two hours credit. Second semester, 10 to 12; first semester, 3 to 5. Fee, \$1. Hungerford.

154.—ADVANCED MORPHOLOGY OF INSECTS. Three hours credit. Throughout the year, by appointment. Fee, \$1.50. Hunter.

155.—TAXONOMY OF INSECTS. Three hours credit. First or second semester, by appointment. Fee, \$1. Hungerford.

156.—APPLIED ENTOMOLOGY. Two hours credit. First semester, 11 to 12. Fee, \$1. Hungerford.

157.—APPLIED ENTOMOLOGY II. Two hours credit. Second semester, 8 to 9. Hungerford.

158.—INSECTS AND PUBLIC HEALTH. Two hours credit. First semester, 10 to 11. Hunter.

159.—TEACHERS' COURSE. Three hours credit. Second semester, by appointment. Hungerford.

160.—AGRICULTURE. Two hours credit. First semester, 8 to 9. Hungerford.

161.—FIELD ENTOMOLOGY AND INSECTARY METHODS. Two hours credit, 3 to 5. Hungerford.

162.—APICULTURE. A research course dealing with the comparative anatomical studies in the various strains of bees and individual colonies of each strain. By appointment. Hunter.

FINE ARTS.

Professors: BUTLER, SKILTON, PREYER, DOWNING, GRIFFITH, HEKKING.

101 and 102.—PIANO. Five or seven hours credit. Each semester, by appointment. Etudes of Philipp, Liszt, MacDowell and others; transcriptions of Bach's organ fugues by Liszt, Tausig, Busoni; modern concert pieces and concertos. Open to those who have completed the piano courses 1 to 8, inclusive, in the School of Fine Arts, or in a school of equal rank. Applicants for admission must play before the Fine Arts Faculty not less than three concert numbers, including a movement of a sonata or concerto, and give a public recital on completion of the course. Preyer.

103 and 104.—ORGAN. Five or seven hours credit. Each semester, by appointment. Greater preludes and fugues and chorale preludes of Bach, of modern German, French, English, and American masters. Oratorio accompaniment and playing with orchestra. Open to those who have completed the piano courses 1 and 2, and the organ courses 1 to 6, inclusive, in the School of Fine Arts, or a school of equal rank. Applicants for admission must play before the Fine Arts Faculty not less than three concert numbers, including a movement of a sonata or concerto, and give a public recital on completion of the course. Skilton.

105 and 106.—OPERA AND ORATORIO. Five or seven hours credit. By appointment. Practical and critical study of the development of opera and oratorio, the practical work consisting of one hour a week of vocal study of selected numbers; the theoretical work of two hours' critical examination of complete works. Open to those who have completed the vocal courses 1 to 8, inclusive, in the School of Fine Arts, or in a school of equal rank. Applicants for admission must sing before the Music Faculty not less than three concert numbers, including an aria, and give a public recital on completion of the course. Butler, Downing.

107 and 108.—COMPOSITION. Five or seven hours credit. By appointment. Original composition in large forms: suite, sonata, overture, cantata, concerto. Applicants must present original compositions in the smaller forms which show evidence of talent and mastery of material. Open to those who have completed the Musical Theory courses, 1 to 12, inclusive, and course 15 in the School of Fine Arts, or in a school of equal rank. Preyer, Skilton.

109 and 110.—VIOLIN. Five or seven hours credit. Each semester by appointment. The study of repertoire for concert work especially. The work will include some, but not necessarily all of the following: Concertos by Mendelssohn, Vieuxtemps, Saint-Saëns, Tchaikowsky, Beethoven, Lalo. Also some of the smaller forms of composition requiring a facile technique. Effort will be made to prepare the student for concert work, rather than for teaching. Open to those who have completed the violin courses, 1 to 8, inclusive, in the School of Fine Arts, or in a school of equal rank. Applicants for admission must play before the Fine Arts Faculty not less than three concert numbers, including a movement of a sonata or concerto, and give a public recital on completion of the course. Kendrie.

DESIGN. Five hours credit. Each semester. Advanced designing, calling for the completion of an original painting containing not less than

three figures. Shortest dimensions of the canvas to be not less than three feet. Open to graduates of the School of Fine Arts or of other schools of equal standing.

Griffith, Hekking.

REQUIREMENTS FOR THE DEGREE MASTER OF MUSIC.

Candidates for this degree must be graduates of the School of Fine Arts or of some other school requiring a like amount of work. After graduation, candidates must have spent at least two years in pursuit of their profession as concert artist, composer or teacher, and must furnish detailed and satisfactory evidence as to the nature and extent of this work.

The candidate must spend at least one year in graduate work at the University. Of the total of thirty credit hours, not less than ten hours shall be in his major subject, and not less than six hours in a minor music subject. Work on the thesis must credit not less than four hours.

All theses for this degree must be delivered to the Dean of the School of Fine Arts on or before May 15.

Professors: BUTLER, SKILTON, PREYER, DOWNING, KENDRIE.

PIANO. Seven hours credit. Each semester, by appointment. Etudes of Phillipp, Liszt, MacDowell and others; transcriptions of Bach's organ fugues by Liszt, Tausig, Busoni; modern concert pieces and concertos. Open only to piano graduates of the School of Fine Arts, or of other schools requiring a corresponding amount of work. Applicants for admission must play before the Fine Arts Faculty not less than three concert numbers, including a movement of a sonata or concerto, and give a public recital on completion of the course.

Preyer.

ORGAN. Seven hours credit. Each semester, by appointment. Greater preludes and fugues and chorale preludes of Bach, and the works of modern German, French, English and American masters. Oratorio accompaniment and playing with orchestra. This course is subject to the same conditions as the course in piano.

Skilton.

VOICE. Five or seven hours credit. Each semester, by appointment. Modern French, Russian, German, Italian, English, and American song literature; the more difficult operatic and oratorio airs; a singing knowledge of at least one complete opera rôle, and one standard oratorio rôle. Open only to vocal graduates of the School of Fine Arts, or of other schools requiring a corresponding amount of work. Applicants for admission must sing before the Fine Arts Faculty not less than three concert numbers, including an aria, and give a public recital on completion of the course.

Butler, Downing.

VIOLIN. Seven hours credit. Each semester, by appointment. Paganini caprices, sonatas by Bach, concertos by Beethoven, Saint-Saëns, Lalo, Tchaikowsky and others. Open only to violin graduates of the School of Fine Arts or of other schools requiring a corresponding amount of work. Applicants for admission must play before the Fine Arts Faculty not less than three concert numbers, including a movement of a sonata or concerto, and give a public recital on completion of the course.

Kendrie.

COMPOSITION. Six hours credit. Each semester, by appointment. Original composition in large forms: suite, sonata, overture, cantata, concerto. Open to graduates of the School of Fine Arts, or of other schools requiring a corresponding amount of work. Applicants must present original compositions in the smaller forms, which show evidence of talent and mastery of material.

Preyer, Skilton.

HISTORY OF MUSIC. Three hours credit. Each semester, by appointment. Seminar and research, along special lines of development of musical forms, to be embodied in a thesis.

Skilton.

INSTRUMENTATION. Three hours credit. Each semester, by appointment. Candidates for the degree must score a complete program for a full orchestra. Open to music graduates of the School of Fine Arts, or of other schools requiring a like amount of work. Applicants must present scores in the smaller forms. Skilton, Nevin.

GEOLOGY.

Professors: HAWORTH, MOORE.

Associate Professor: HAYNES.

Assistant Professor: FLEENER.

GENERAL STATEMENT. Special training for professional geological work in various fields of the science is offered in the Graduate School by the Department of Geology. The advanced courses are a continuation of the sequences outlined in the undergraduate college. Special mention may be made of the advanced courses in petroleum geology in which the sequence should be as follows: 161, 171, 172, 173, 175, 176, 178, 179, 270, 271-4.

PREREQUISITES. Students desiring to take graduate courses in geology must present not less than the substantial equivalent of undergraduate courses in geology 2, 3, 4, 30, or 31 and elementary physics and chemistry.

GENERAL GEOLOGY AND GEOGRAPHY.

100.—**GEOLOGIC METHODS.** Five hours credit. First semester by appointment. An advanced course intended to familiarize the student with methods of geological investigation, field study and mapping. This course makes a study of geological reports and gives practice in the preparation of such reports. Haworth, Haynes.

150.—**GEOLOGIC AND TOPOGRAPHIC MAPS.** Two hours credit. First semester, at 11. A laboratory study designed to give a thorough understanding of geologic and topographic maps and their interpretation. Haynes, Fleener.

151.—**GEOLOGIC PROCESSES.** Three hours credit. First semester, at 11. A critical investigation of geological agencies and the results of their work. Haworth, Fleener.

152.—**FIELD GEOLOGY.** Six hours credit. Summer session. A study of the geology and physiography of parts of Kansas and Colorado. (See college catalog.) Moore, Haynes.

153.—**FIELD GEOLOGY REPORT.** An additional credit of three hours for a satisfactory thesis based on the work of course 152.

157.—**GEOGRAPHY OF NORTH AMERICA.** Three hours credit. First semester, at 1. A study of the physical features of the continent, its climates and the character and distribution of its natural resources; the influence of geographic conditions in the development and life of the different countries. (Not given in 1919-'20.) Moore, Haynes.

158.—**GEOGRAPHY OF SOUTH AMERICA.** Three hours credit. First semester, at 1. The physical features, climates and resources of the continent; their effects on the development and prospects of the different countries. (Not given in 1920-'21.) Haynes.

159.—**GEOLOGY AND GEOGRAPHY OF KANSAS.** Two hours credit. Second semester, at 11. Lectures and library work. A careful study of the geology and physical geology of the state, including both economic and paleontologic studies. Haworth, Moore, Haynes.

200.—**SUMMER FIELD WORK.** Special work in some selected area under the supervision of the faculty of the Department of Geology.

202.—**RESEARCH IN GENERAL GEOLOGY.** Special work on a research problem under the supervision of the faculty of the department.

HISTORICAL GEOLOGY AND PALEONTOLOGY.

160.—HISTORY OF INVERTEBRATE LIFE. Two hours credit. First semester, at 9. A consideration of the ancient invertebrate life of the earth, its progressive development, its organization into faunas, and the relations of these faunas to environment. Moore.

161.—HISTORICAL GEOLOGY. Five hours credit. Second semester, at 9. A study of the geologic history of the earth, the evolution and development of the continents, stratigraphy and the history of plant and animal life from the earliest beginnings to the present. Moore.

162.—INVERTEBRATE PALEONTOLOGY. Five hours credit. First semester by appointment. A study of the introduction and succession of fossil faunas, their composition and geographic distribution. Moore.

163.—STRATIGRAPHIC GEOLOGY. Five hours credit. Second semester, at 10. An advanced course in the study of the stratified rocks and their correlation; with special reference to the work of the petroleum geologist in determining geologic structures. Moore.

164.—ADVANCED INVERTEBRATE PALEONTOLOGY. Five hours credit. By appointment. A continuation of course 162, including the study of representative fossil faunas, their distribution and method of correlation. Moore.

165.—RESEARCH IN INVERTEBRATE PALEONTOLOGY. Five to ten hours credit. By appointment. Moore.

ECONOMIC GEOLOGY.

171.—STRUCTURAL AND DYNAMIC GEOLOGY. Five hours credit. First semester, at 2. A careful study of geological dynamics and the results of dynamic actions particularly on stratified rocks. Haworth, Haynes.

172.—ECONOMIC GEOLOGY I. Metals. Five hours credit. First semester, at 10. A general study of the metallic products of mines considered from a scientific and practical standpoint, including the nature, origin, geographic and geologic distribution of the same. Haworth, Haynes.

173.—ECONOMIC GEOLOGY II. Oil, Gas and Coal. Five hours credit. Second semester, at 10. A careful study of oil, gas and coal from the point of origin, geographic and geologic distribution and economic importance. Haworth, Haynes.

174.—ADVANCED ECONOMIC GEOLOGY. Coal. Five hours credit. First semester by appointment. A study of the coal fields of the world, including their geology, geography and commerce and approved methods of field investigation. Prerequisites, courses 171, 172 and 173 or their equivalents. Haworth, Haynes.

176.—GEOLOGY AND TECHNOLOGY OF THE METALS I. Five hours credit. First semester, by appointment. This course and course 177 are intended to constitute a year's study of the geology of the metals. An extensive study of ore deposits will be made in this course, and the geology of many of the important metal mining camps will be studied. Prerequisites, courses 171, 172 and 173, or their equivalents. Haworth, Haynes.

177.—GEOLOGY AND TECHNOLOGY OF THE METALS II. Five hours credit. Second semester, by appointment. A continuation of 176. Haworth, Haynes.

178.—PETROLEUM FIELDS OF THE WORLD I. North America. Five hours credit. First semester, by appointment. An intensive study of the oil-producing districts of this continent with special reference to the surface and structural geology and occurrence of oil.

179.—THE PETROLEUM FIELDS OF THE WORLD II. Other continents. Five hours credit. Second semester by appointment. A continuation of 178, considering the important oil fields of the world outside of North America.

175.—PRINCIPLES OF SUBSURFACE GEOLOGY. Three hours credit. Second semester by appointment. A study of the methods of determining the conditions beneath the earth's surface with special reference to the problem of the petroleum geologist. The correlation of well-logs, examination of drill-cuttings for petrologic and paleontologic characters, and graphic representation and interpretation will be considered, as well as water problems and their treatment.

271-274.—SEMINAR. Study of the current developments and geologic problems in the field of the petroleum geologist. Two hours credit. May be taken several semesters for credit.

275.—RESEARCH IN ECONOMIC GEOLOGY. Special work on a problem under the supervision of the faculty of the department.

MINERALOGY AND PETROLOGY.

180.—ADVANCED MINERALOGY. Five hours credit. By appointment. Haynes.

181.—ADVANCED PETROLOGY. Five hours credit. By appointment. Haynes.

182.—RESEARCH IN MINERALOGY. Haynes.

183.—RESEARCH IN PETROLOGY. Haynes.

GERMANIC LANGUAGES AND LITERATURES.

Professors: ENGEL, THURNAU.

Associate Professors: CORBIN, KRUSE.*

Assistant Professor: STURTEVANT.

100.—HISTORY OF THE GERMAN LANGUAGE. Two hours credit. Second semester, by appointment. Introduction to philological study. Wright's History of the German Languages, vol. I, and supplementary reading. Lectures and library work.

101.—GOTHIC. Two hours credit, first semester, and two hours, second semester, by appointment. Graune's Gothic Grammar; Streitberg's *Gothic Bible*. Phonetics, grammar, and translation. Sturtevant.

102.—OLD NORSE. Two hours credit, first semester; and two hours, second semester, by appointment. Noreen's *Altnordische Grammatik*. Holthausen's *Altisländisches Lesebuch*; The Elder Edda. Sturtevant.

103.—GERMANIC MYTHOLOGY. Two hours credit. First semester, at 9:30. Kruse.

104.—OLD HIGH GERMAN. Two hours credit. First semester, by appointment. Braune's *Althochdeutsche Grammatik und Lesebuch*. Sturtevant.

105.—OLD SAXON. Two hours credit. Second semester. Sturtevant.

106.—MIDDLE HIGH GERMAN. Two hours credit, first semester, and two hours, second semester, by appointment. Paul's *Mittelhochdeutsche Grammatik*; Hartmann, *Der Arme Heinrich*; *Nibelungenlied*. Selections from Walther von der Vogelweide. Engel.

107.—SEMINAR IN GERMAN LITERATURE. Two hours credit, first semester, and two hours, second semester, by appointment. The subject for study in 1920-'21 will be Heine. Thurnau.

108.—THE ROMANTIC SCHOOL. Two hours credit, first semester, and two hours, second semester, by appointment. Early Romantic school,

* Absent on leave, 1919-'20.

first semester, and later Romantic school, second semester. Lectures on the Romantic movement, library reading, and reports. Corbin.

109.—SPECIAL STUDIES IN HEBBEL. Two hours credit. Second semester, by appointment. Kruse.

152.—HISTORY OF GERMAN PROSE FICTION. Three hours credit. Second semester. Thurnau.

153.—THE LYRICS OF GOETHE. Two hours credit. First semester. Corbin.

154.—THE REALISTIC DRAMA. Three hours credit. First semester. Kruse.

155.—THE NATURALISTIC DRAMA. Two hours credit. Second semester. Kruse.

156.—THE ROMANTIC DRAMA. Two hours credit. Second semester. Kruse.

157.—STORM AND STRESS. Three hours credit. First semester. Engel.

MODERN SCANDINAVIAN.

158.—MODERN SWEDISH I. Three hours credit. First semester, by appointment. Sturtevant.

159.—MODERN SWEDISH II. Three hours credit. Second semester, by appointment. Sturtevant.

160.—MODERN NORWEGIAN I. Three hours credit. First semester, by appointment. Sturtevant.

161.—MODERN NORWEGIAN II. Three hours credit. Second semester, by appointment. Sturtevant.

Swedish and Norwegian are given in alternate years, but either may be given in successive years, if occasion requires.

162.—TEACHERS' COURSE. Three hours credit. First semester, at 9:30. Review of special topics in grammar and syntax, with composition and practical illustrative exercises based on Thomas' German Grammar, some study and drill in elementary practical phonetics, and a comparison and discussion of different methods in teaching beginning German. Intended especially for those who expect to teach German in high schools. Open only to the best students of the department. (See School of Education.) Engel.

HISPANIC LANGUAGES AND LITERATURES.

Professor: OWEN.

Assistant Professors: GARDNER, OSMA, ALBALADEJO.

100.—SEMINAR. Five hours credit. First and second semesters by appointment. Open to candidates for an advanced degree who satisfy the instructors of their preparation and ability to undertake problems of original research. Each student may pursue a chosen line of work with the approval of the department and under the direction of its instructors. Owen.

101.—HISTORICAL SPANISH GRAMMAR. Three hours credit. First semester, by appointment. A study of Spanish phonology, morphology and syntax in connection with readings from the oldest literary monuments and exercises upon facsimile manuscripts. Owen.

102.—HISTORY AND DEVELOPMENT OF THE DRAMA. Two hours credit. First semester, by appointment. The drama before the Golden Age. Osma.

103.—HISTORY AND DEVELOPMENT OF THE NOVEL. Two hours credit. Second semester, by appointment. The novel before Cervantes. Osma.

104.—THE ROMANTIC SCHOOL. Three hours credit. Second semester, by appointment. The romantic movement in Spain, particularly in its relation to those in England and France and to the national romantic tradition. Gardner.

105.—SPANISH-AMERICAN LITERATURE. Three hours credit. First semester, by appointment. A study of the most important poets and prose writers of Argentina, Chile, Ecuador, Nicaragua, Columbia and other Spanish-American countries, *e. g.*, Rodo, Andrade, Montalvo, Dario, Arboleda, etc. Gardner.

106.—SPANISH REALIA. Two hours credit. Second semester, by appointment. In this course an attempt is made to present the cultural, industrial, social, and political development of Spain, particularly since 1450. Albaladejo.

107.—REGIONAL LITERATURE OF SPAIN. Three hours credit. Second semester, by appointment. A general historical survey of those literatures of the Spanish Peninsula not written in Castilian. Particular emphasis will be placed upon the Catalan and Galician literatures. Osma.

108.—OLD CATALAN. Two hours credit. First semester, by appointment. A study of the phonology, morphology and syntax of Old Catalan. Reading of some of the early monuments: Balades d'els trovayres, Mosen Jordi del Rey, Raimon Llull, Lo Desconort y sa poesia mistica, Muntaner, Ausias March. Osma.

109.—OLD PORTUGUESE. Two hours credit. Second semester, by appointment. A study of the phonology, morphology and syntax of Portuguese. Reading of selections from the *Concioneiros dos trovadores*, *Tradiçoes epicas*, *Poema da Batalha do Salado* of Affonso de Giraldes, Gil Vicente and Camoes. Osma.

153.—HISTORY OF MODERN SPANISH LITERATURE. Three hours credit. First semester, by appointment. From 1790 to the end of the nineteenth century. The influence of French neoclassicism and of the English and French romanticists. The rise of realism. Owen.

154.—THE CLASSIC SPANISH DRAMA. Two hours credit. First semester, by appointment. Moreto, Tirso de Molina, Lope de Vega, Calderón and Ruiz de Alarcón. Careful study of selected plays from each dramatist; more rapid reading of others. Osma.

155.—CONTEMPORARY SPANISH LITERATURE. Three hours credit. Second semester, by appointment. A study of the literary renaissance in Spain since the Spanish-American war; the "Generation of 1898"; novel drama and criticism. Lectures, collateral reading, and reports. Owen.

156.—THE SPANISH NOVEL OF THE SEVENTEENTH CENTURY. Two hours credit. Second semester, by appointment. Gardner.

157.—DON QUIJOTE. Three hours credit. First semester, by appointment. Albaladejo.

158.—HISTORY OF EARLY SPANISH LITERATURE. Three hours credit. Second semester, by appointment. Owen.

190.—TEACHERS' COURSE. Three hours credit. First semester, by appointment. Gardner.

HISTORY AND POLITICAL SCIENCE.

Professors: HODDER, PATTERSON.

Associate Professors: CRAWFORD, DAVIS, MOORE.

Assistant Professors: MELVIN, CHUBB.

EQUIPMENT. The University library has a considerable number of the basic sets requisite for historical research, such as Migne's *Patrologia*, the *Monumenta Germaniæ Historica*, the *Scriptores Rerum Italicarum*,

the Rolls Series, the Journals of the Lords and Commons, the Reports of the English Historical MSS. Commission, and several series of the Calendars of State Papers. The general sets are supplemented by special collections in English legal history, the period of the French revolution and several fields of American history. The recent provision of separate quarters in the library for research students in history has improved the facilities for graduate work.

HISTORY.

100 and 101.—SEMINAR IN EUROPEAN HISTORY. Three or five hours credit. First and second semesters, hours by appointment. A study of the sources in some restricted field and the preparation of papers based upon them. Designed to give practical experience in historical investigation. Melvin.

102 and 103.—SEMINAR IN AMERICAN HISTORY. Three or five hours credit. First and second semesters, hours by appointment. Practice work with source material. The subjects for investigation will be taken from the history of the trans-Missouri West. Hodder.

150.—GREEK HISTORY. Two hours credit. First semester. Brandt.

151.—ROMAN HISTORY. Two hours credit. Second semester.

Brandt.

152.—MEDIÆVAL INSTITUTIONS. Two hours credit. First semester. Patterson.

153.—MEDIÆVAL CULTURE. Two hours credit. Second semester.

Patterson.

154.—ITALIAN RENAISSANCE. Two hours credit. First semester.

Patterson.

155.—PROTESTANT REVOLT. Two hours credit. Second semester.

Patterson.

156 and 157.—ENGLISH INSTITUTIONS. Two hours credit. First and second semesters. Crawford.

158 and 159.—HISTORY OF THE COMMON LAW. Two hours credit. First and second semesters. Crawford.

160.—FOUNDATIONS OF MODERN EUROPE. Three hours credit. First semester. Melvin.

161.—HISTORY OF CONTEMPORARY EUROPE. Three hours credit. Second semester. Melvin.

162.—FRENCH REVOLUTION. Three hours credit. First semester. Melvin.

163.—NAPOLEON. Two hours credit. Second semester. Melvin.

164.—CONTEMPORARY DIPLOMACY. Three hours credit. First semester. Davis.

165 and 166.—PROBLEMS OF MODERN EUROPEAN HISTORY. Two hours credit. First and second semesters. Melvin.

167.—AMERICAN COLONIAL HISTORY. Three hours credit. First semester. Hodder.

168.—AMERICAN REVOLUTION AND THE CONSTITUTION. Three hours credit. Second semester. Hodder.

169.—AMERICAN CONSTITUTIONAL LAW. Two hours. Second semester. Hodder.

170 and 171.—PRESIDENTIAL ADMINISTRATIONS. Five hours credit. First and second semesters. Hodder.

172.—LATIN AMERICA. Three hours credit. Second semester. Davis.

173.—MODERN ASIA. Three hours credit. Second semester. Davis.

POLITICAL SCIENCE.

104 and 105.—SEMINAR. Three or five hours credit. First and second semesters, hours by appointment. Individual investigation under the direction of the instructor. The field for investigation will be determined after the organization of the seminar. Moore.

181.—MUNICIPAL GOVERNMENT. Three hours credit. Second semester. Moore.

182.—MUNICIPAL ADMINISTRATION. Three hours credit. First semester. Moore.

183.—AMERICAN STATE GOVERNMENT. Two hours credit. Second semester. Moore.

184.—COMPARATIVE GOVERNMENT. Three hours credit. First semester. Chubb.

185.—THE JUDICIARY. Two hours credit. Second semester. Moore.

186.—POLITICAL PARTIES. Two hours credit. First semester. Chubb.

187.—INTERNATIONAL LAW. Three hours credit. First semester. Moore.

188.—ELEMENTARY LAW. Three hours credit. Second semester. Moore.

189.—PRINCIPLES OF POLITICAL SCIENCE. Three hours credit. First semester. Moore.

190.—HISTORY OF POLITICAL THEORIES. Two hours credit. Second semester. Moore.

HOME ECONOMICS.

Professor: SPRAGUE.
Assistant Professor: ANDERSON.

100.—RESEARCH COURSE. Five or ten hours credit. Either semester, by appointment. This course should run through the year to gain ten hours credit. Original investigation of some unsolved problem relating to the home. Open to graduate students who have sufficient preparation. Fee, \$1 per hour. Sprague.

101.—SEMINAR. Three hours credit. Second semester, by appointment. Discussion of and reports on current literature relating to home economics. The full presentation of some subject will be required. Sprague.

151.—DIETETICS. Five hours credit. Second semester. Fee, \$2.50. Anderson.

152.—SPECIAL PROBLEMS IN HOME ECONOMICS I. Three or five hours credit. First semester. Fee, \$1 per hour. Sprague.

153.—SPECIAL PROBLEMS IN HOME ECONOMICS II. Three or five hours credit. Second semester. Fee, \$1 per hour. A continuation of course 152. Sprague.

165.—PUBLIC ASPECTS OF THE HOUSEHOLD. Three hours credit. Both semesters. Sprague.

JOURNALISM.

Professor: FLINT.
Instructor: LEWIS.

100.—SEMINAR. Three to five hours credit. Either semester, by appointment. A research course for mature students having the necessary preparation and ability to undertake a definite line of original investigation under the direction of instructors. Flint.

151.—MAGAZINE WRITING. Three hours credit. First semester. Flint.

152.—THE SHORT STORY. Three hours credit. Second semester.

Lewis.

153.—INTERPRETATION OF THE NEWS I. Two hours credit. First semester.

Flint.

154.—INTERPRETATION OF THE NEWS II. Two hours credit. Second semester.

Flint.

155.—ADVERTISING I. Three hours credit. First semester.

Flint.

156.—ADVERTISING II. Three hours credit. Second semester.

Flint.

160.—EDITORIAL PROBLEMS AND POLICIES I. Three hours credit. First semester.

Flint.

161.—EDITORIAL PROBLEMS AND POLICIES II. Three hours credit. Second semester.

Flint.

LAW.

Professors: BURDICK, HUMBLE, HARNO, STRONG.

Associate Professor: RICE.

100.—CONSTITUTIONAL LAW. Five hours credit. Daily, second semester, at 11:30. General principles governing constitutions; the United States and the states; establishment and amendment of constitutions; construction and interpretation; departmental powers; police power; eminent domain; taxation; civil rights; constitutional guaranties; laws impairing the obligation of contracts, retroactive laws.

Strong.

101.—COMMON-LAW PLEADING. Two and one-half hours credit. Daily, first half of first semester, at 8:30. An analytical and historical study of the law of remedies at common law, including ancient modes of trial; special topics assigned, such as assumpsit, trover, trespass, for historical investigation of the development of the law of contracts and of torts.

Rice.

103.—ROMAN LAW. One hour a week, F., first semester, at 9:30. Development and extension of Roman law; its revival and present influence; the *corpus juris civilis*; the law of persons, of the family, of property, of servitude, of obligations, of delicts, of inheritance, of procedure.

Burdick.

SUGGESTIONS: The courses in WILLS (Professor Harno, first semester, first half, daily, at 9:30), and INSURANCE (Professor Humble, first semester, second half, daily, at 10:30) are worthy of consideration for graduate work. The course in CRIMINAL LAW (Burdick, first semester, daily, at 10:30) should be valuable for graduate students in sociology.

MATHEMATICS.

Professor: ASHTON.

Associate Professors: MITCHELL, STOFFER, LEFSCHETZ.

Assistant Professor: JORDAN.

100.—THEORY OF FUNCTIONS OF A COMPLEX VARIABLE. Three hours credit. Throughout the year, by appointment. An introduction to the general theory of functions of a complex variable.

Ashton.

101.—THEORY OF FUNCTIONS OF A REAL VARIABLE. Three hours credit. Throughout the year, by appointment. The theory of assemblages, limits, continuity, convergence, derivatives, integrals, etc.

Mitchell.

102.—THEORY OF ELLIPTIC FUNCTIONS. Three hours credit, throughout the year.

Ashton.

107.—HIGHER ALGEBRA. Three hours credit. Second semester, by appointment. Selected topics in Bocher's Introduction to Higher Algebra. Fundamental properties of polynomials; properties of determinants; theory of linear dependence; systems of linear equations; linear trans-

formations; multiplication of matrices; bilinear forms; properties of polynomials in general. Mitchell.

108.—GALOIS'S THEORY OF EQUATIONS. Two hours credit. First semester, by appointment. The application of the method of groups to the study of algebraic equations. Ashton.

110.—THEORY OF CURVES AND SURFACES. Three hours credit. Throughout the year. Lefschetz.

111.—DIFFERENTIAL GEOMETRY. Two hours credit. Throughout the year, by appointment. Applications of the calculus to the theory of curves and surfaces. Mitchell.

113.—PROJECTIVE GEOMETRY. Three hours credit. Throughout the year, by appointment. The logical foundations of projective geometry; principle of duality; projective transformations in one-, two- and three-dimensional forms; conic sections; introduction of analytic methods on a synthetic basis. The general projective group and its important subgroups. Mitchell.

114.—FOURIER'S SERIES, AND THE POTENTIAL FUNCTION. Three hours credit. Throughout the year, by appointment. Development of functions in Fourier's series, with applications to the solution of problems in physics. Introduction to spherical harmonics. The potential function. Prerequisites, courses 50, 51, 55. Ashton, M. E. Rice.

115.—PROJECTIVE DIFFERENTIAL GEOMETRY. Three hours credit. Throughout the year, by appointment. Elements of Lie's Theory; invariants and covariants of linear homogeneous differential equations; projective differential geometry of plane and space curves, ruled surfaces, and curves on ruled surfaces. Stouffer.

121.—THEORY OF NUMBERS. Three hours credit. Second semester, by appointment. Divisibility, congruences, primitive roots, quadratic residues, quadratic forms, laws of reciprocity of Legendre-Gauss. Lefschetz.

150.—ANALYTICAL MECHANICS. Three hours credit. Second semester. Lefschetz.

151.—DIFFERENTIAL EQUATIONS. Three hours credit. First semester. Mitchell.

152.—ADVANCED CALCULUS. Three hours credit. First semester. Jordan.

153.—ELLIPTIC INTEGRALS. Two hours credit. Second semester. Ashton.

154.—ELEMENTARY NUMBER THEORY. Two hours credit. Second semester. Lefschetz.

155.—SERIES. Two hours credit. First semester. Ashton.

157.—COMPLEX NUMBERS. Three hours credit. Second semester. Ashton.

159.—MODERN GEOMETRY I. Three hours credit. First semester. Stouffer.

160.—MODERN GEOMETRY II. Three hours credit. Second semester. Stouffer.

162.—HISTORY OF MATHEMATICS. Two hours credit. First semester. Mitchell.

189.—TEACHERS' COURSE. Two hours credit. Second semester. Mitchell.

PHARMACEUTICAL CHEMISTRY.*Professors:* SAYRE, HAVENHILL.

100.—PHYTOCHEMISTRY (PLANT CHEMISTRY). Five hours credit. First and second semesters. Original investigation and research work on the chemical constituents of plants, dealing especially with such constituents as exert a marked physiological action when introduced into the animal economy. Sayre.

101.—ANALYSIS OF DRUGS AND DIETETICS. Two, three, or five hours credit. Either semester. This is a companion course to food analysis (see pharmaceutical chemistry P151), and is arranged especially for students who desire to qualify as food and drug analysts.

Sayre or Havenhill.

102.—RESEARCH IN PHARMACEUTICAL CHEMISTRY. Two or more hours credit. Throughout the year, by appointment. Havenhill.

PHILOSOPHY AND PSYCHOLOGY.*Professors:* HOLLANDS, TEMPLIN, HUNTER.*Associate Professor:* DOCKERAY.*Assistant Professor:* STARK.

Candidates for the master's degree whose major subject is Philosophy, must have completed the equivalent of eight hours credit in undergraduate courses in the subject. At least fifteen hours of the thirty hours credit required for the degree must be in strictly graduate work. Six to ten hours credit will be allowed for thesis. The library is supplied with the standard editions of the classical philosophers, a good selection of the recent literature, and the representative periodicals in English, French, and German.

Graduate students in psychology must present at least fifteen hours of undergraduate psychology before receiving one of the higher degrees. Of the thirty hours graduate work required for the master's degree, from six to ten will be allowed for a suitable thesis. The library and laboratory equipment for this science is described in the College catalog, and is ample for the pursuit of a limited number of standard researches.

COURSES IN PHILOSOPHY.

100.—PHILOSOPHICAL SEMINAR. Five or ten hours credit. First semester, by appointment. Opportunity will be given graduate students to continue in a more exhaustive manner the study of any of the subjects offered in the College courses, and to engage in original investigation. The work will be arranged to suit the special needs of individual students and will be under the immediate supervision of some instructor in the department.

101.—PHILOSOPHICAL SEMINAR. Five or ten hours credit. Second semester, by appointment. A continuation of the preceding course.

170.—HISTORY OF PHILOSOPHY I. Three hours credit. First semester. Hollands.

171.—HISTORY OF PHILOSOPHY II. Three hours credit. Second semester. Hollands.

172.—PHILOSOPHICAL CLASSICS I. Two hours credit. First semester. Hollands.

173.—PHILOSOPHICAL CLASSICS II. Two hours credit. Second semester. Hollands.

174.—THEORY OF KNOWLEDGE. Three hours credit. First semester. Hollands.

175.—METAPHYSICS. Three hours credit. Second semester. Hollands.

- 176.—PHILOSOPHY OF RELIGION. Two hours credit. First semester.
Hollands.
- 177.—ADVANCED LOGIC. Three hours credit. Second semester.
Templin.
- 178.—PHILOSOPHY OF THE STATE. SOCIAL AND POLITICAL ETHICS
Three hours credit. Second semester. Templin.
- 180.—SYSTEMATIC ETHICS. Three hours credit. First semester.
Templin.
- 181.—PRACTICAL ETHICS Two hours credit. Second semester.
Templin.
- 182.—ÆSTHETICS. Two hours credit. Second semester. Templin.

COURSES IN PSYCHOLOGY.

102.—PSYCHOLOGICAL SEMINAR. Three, five, or ten hours credit.
First semester. Opportunity is given graduate students for the advanced study of special topics in psychology. The organization of the seminar will take different forms to meet the needs of its members. Individual study of theoretical questions will be provided for by individual appointment. Group study of theoretical questions will be conducted through weekly meetings.

103.—PSYCHOLOGICAL SEMINAR. Three, five, or ten hours credit.
Second semester. A continuation of course 102.

150.—ATTENTION, LEARNING AND THOUGHT. Three hours credit. First semester.
Hunter.

151.—ANIMAL BEHAVIOR. Three hours credit. Second semester.
Hunter.

152.—ABNORMAL PSYCHOLOGY. Three hours credit. Second semester.
Dockeray.

153.—CHILD PSYCHOLOGY. Two hours credit. First semester.
Dockeray.

154.—INDIVIDUAL PSYCHOLOGY. Three hours credit. First semester.
Stark.

155.—SOCIAL PSYCHOLOGY. Three hours credit. Second semester.
(Not given in 1920-'21.) Hunter.

156.—INSTINCT AND EMOTION. Three hours credit. Second semester.
Hunter.

166.—ADVANCED PSYCHOLOGY OF LEARNING. Two hours credit. Second semester.
Hunter.

167.—PRINCIPLES OF PSYCHOLOGY. Three hours credit. Second semester.
Hunter.

168.—ADVANCED PSYCHOLOGY I. Two to five hours credit. First semester.
Hunter, Dockeray, Stark.

169.—ADVANCED PSYCHOLOGY II. Two to five hours credit. Second semester.
Hunter, Dockeray, Stark.

PHYSICS AND ASTRONOMY.

Professor: KESTER.

Associate Professors: RICE (M. E.), ALTER.

Assistant Professor: STIMPSON.

Instructor: WARNER.

PHYSICS.

100.—GRADUATE LABORATORY. Two to five hours credit. Either semester, by appointment.
Kester, Rice, Smith.

101.—THEORETICAL MECHANICS. Three hours credit. Through first and second semesters, by appointment. Lectures, with a problem hour

each week. Prerequisites, course 50 or its equivalent, and another course of the same grade. Offered in alternate years. (Not offered in 1920-'21.) Kester.

102.—THEORY OF HEAT AND THERMODYNAMICS. Two hours credit. Through first and second semesters, by appointment. Lectures and problems. A development of Gibbs's ideas of the thermodynamic potentials and of equilibrium in systems containing several components in various phases. Prerequisites, courses 50 and 51, or 52 and 53, or equivalents. Offered in alternate years. (Not offered in 1920-'21.) Kester.

103.—THEORY OF ELECTRICITY. Three hours credit. Through first and second semesters, by appointment. Lectures and problems. Prerequisites, course 52 or its equivalent, and another course of the same grade. Offered in alternate years. Kester.

104.—ADVANCED OPTICS. Two hours credit. Through first and second semesters, by appointment. Lectures and problems. A development of the electromagnetic theory of light, of the Abbe theory of optical instruments, etc. Prerequisites, course 51 or its equivalent, and another course of the same grade. Offered in alternate years. M. E. Rice.

(Courses 101, 102, 103, and 104 together form a two-year cycle, developing the fundamental parts of physics in a rigorous and detailed manner. Other courses, covering more special [in some cases newer] topics, are listed below.)

105.—ELECTRON THEORY. Two hours credit. Throughout the year, by appointment. Theory of electromagnetic mass and of conduction of electricity through metals. Prerequisites, physics 50 and 51, or 52 and 53, or equivalents. Offered in alternate years. (Not offered in 1920-'21.) Kester.

106.—OSCILLATORY ELECTRIC CURRENTS AND ELECTROMAGNETIC WAVES. Three hours credit. Second semester, by appointment. Lectures and problems, giving the principles which underlie wireless telegraphy and telephony. Prerequisites, course 52 or its equivalent, another course of same grade, and some differential equations. Offered in alternate years. M. E. Rice.

107.—RESEARCH AND THESIS. Three to ten hours credit. Either semester. Students who are carrying on original investigations (either experimental or theoretical) in physics will register in this course. Staff.

114.—FOURIER'S SERIES AND THE POTENTIAL FUNCTION. Three hours credit. Throughout the year, by appointment. Development of functions in Fourier's series, with application to the solutions of problems in physics. Introduction to spherical harmonics. The potential function with applications to problems in electricity. Prerequisites, physics 50 or mathematics 50, mathematics 51 and 55, or equivalent.

M. E. Rice, Ashton.

For detailed description of the following courses see the courses in physics in the College of Liberal Arts and Sciences.

150.—MECHANICS AND HEAT. Three hours credit. First semester. Kester.

(It is recommended that this course be followed by mathematics 150, analytic mechanics, three hours.)

151.—LIGHT AND RADIANT ENERGY. Three hours credit. Second semester. Offered in alternate years. (Not offered in 1920-'21.) M. E. Rice.

152.—ELECTRICITY. Three hours credit. First semester. M. E. Rice.

153.—CONDUCTION OF ELECTRICITY THROUGH GASES. Three hours credit. Second semester. Offered in alternate years. Kester.

154.—PRINCIPLES OF ELECTRIC WAVE TELEGRAPHY. Three hours credit. First semester. Warner.

155.—PHYSICS LABORATORY. Light and radiant energy. Two to five hours credit. Second semester. By appointment. M. E. Rice.

156.—PHYSICS LABORATORY. Electricity. Two to five hours credit. Either semester. By appointment. M. E. Rice.

157.—PHYSICS LABORATORY. Gas conduction and radioactivity. Two to five hours credit. Second semester. By appointment. Kester.

158.—TEMPERATURE CONTROL AND MEASUREMENT. Three hours credit. Second semester. Offered in alternate years. (Not offered in 1920-'21.) Kester.

159.—ELECTRIC WAVE TELEGRAPHY LABORATORY. Two to four hours credit. First semester. Warner.

160.—OPTICAL INSTRUMENTS. Three hours credit. Second semester. Offered in alternate years.

161.—ALTERNATING CURRENTS. Three hours credit. Second semester, by appointment. Offered in alternative years. (Not offered in 1920-'21.) M. E. Rice.

163.—PHYSICS COLLOQUIUM. One hour credit. Either semester by appointment. Staff.

180.—TEACHERS' COURSE IN PHYSICS. Three hours credit. Second semester, by appointment. Stimpson.

ASTRONOMY.

120.—ADVANCED ASTRONOMY. Any one of the following: Orbit computation; celestial mechanics; special perturbations; general perturbations. These courses will involve a great deal of mathematical computation. Hours and credit to be arranged. Alter.

182.—SPHERICAL AND PRACTICAL ASTRONOMY. Three hours credit. Throughout the year, by appointment. Alter.

183.—HISTORY OF ASTRONOMY. Three hours credit. First semester, by appointment. Alter.

184.—INTRODUCTION TO ASTROPHYSICS. Three hours credit. Second semester, by appointment. Alter.

185.—METHOD OF LEAST SQUARES. Three hours credit. First semester, by appointment. Alter.

186.—THEORY AND PRACTICE OF INTERPOLATION. Three hours credit. Second semester, by appointment. Alter.

187.—THEORETICAL ASTRONOMY. Five hours credit. Throughout the year, by appointment. Alter.

188.—VECTOR ANALYSIS. Three hours credit. First semester, by appointment. Alter.

189.—VECTORIAL MECHANICS. Three hours credit. Second semester, by appointment. Alter.

PHYSIOLOGY AND PHARMACOLOGY.

Professor: STOLAND.

Assistant Professors: WELKER, REED.

100.—RESEARCH IN PHYSIOLOGY. Either semester, by appointment. Open to students who have had proper preparation in physiology and allied sciences. Stoland.

150.—PHYSIOLOGY OF THE MECHANISMS OF NUTRITION. Five hours credit. First semester. Lectures and recitations, M. W. F., at 9:30; laboratory, four hours, by appointment. Stoland.

151.—PHYSIOLOGY OF MOVEMENT AND SENSATION. Five hours credit. Second semester. Lectures and recitations, M. W. F., at 9:30; laboratory, four hours, by appointment. Stoland.

161.—EXPERIMENTAL PHYSIOLOGY. Three to five hours credit. Both semesters. Reed.

162.—PHYSIOLOGY OF THE ORGANS OF INTERNAL SECRETION. Three to five hours credit. Second semester, by appointment. Stoland.

163.—SPECIAL PROBLEMS IN PHYSIOLOGY. Two to seven hours credit. Both semesters. Stoland, Reed.

170.—MEDICAL PHYSIOLOGY I. Five hours credit. Second semester. Lectures and recitations, M. W. F., at 1:30; laboratory, Tu. Th., 1:30 to 4:30. The physiology of blood, circulation, respiration, muscle and nerve. Prerequisites, organic chemistry, biochemistry, physics, histology and anatomy. Stoland, Reed.

171.—MEDICAL PHYSIOLOGY II. Five hours credit. First semester. Lectures and recitations, M. W. F., at 8:30; laboratory, Tu. Th., 8:30 to 11:30. The physiology of the central nervous system, the senses, the digestive tract, secretion, metabolism, excretion, heat regulation, internal secretions. Prerequisites, physiology 170 and neurology.

Stoland, Reed.

172.—PHARMACOLOGY (at Rosedale). Three hours credit, Tu. Th. Sat., at 8:30. Second semester. Lectures and recitations. Didactic instruction which deals primarily with the physiological actions of the more important drugs employed in therapeutics, their uses and methods of administration. Prerequisites, physiology 170 and 171. Welker.

173.—PHARMACOLOGY (at Rosedale). Two hours credit, Tu. Th. Sat., at 2. Second semester. Laboratory instruction illustrating many of the underlying principles considered in course 1. Must be accompanied by 172. Welker, Anderson.

174.—PHARMACOLOGY. Credit to be arranged, the amount depending upon the time given to the subject. A course in which students who have had courses 172 and 173 and are properly qualified to do advanced work in pharmacology are given an opportunity to do independent original work. Both semesters. Stoland, Welker.

ROMANCE LANGUAGES AND LITERATURES.

Professor: GALLOO.

Associate Professor: NEUEN SCHWANDER.

Assistant Professors: STANTON, MAHIEU.

Instructor: CRAM.

100 and 101.—SEMINAR. Five hours credit. Each semester, by appointment. Research course for advanced students, who will be given an opportunity, under the immediate supervision of the department, to carry on investigation in the field of Romance linguistics or literature.

Galloo, Neuen Schwander.

102.—COLLOQUIAL AND MEDIAEVAL LATIN I. Two hours credit. First semester, by appointment. The development of Latin as a spoken language from the *sermo cotidianus* of classical antiquity, through its popular and scholastic use in the early Middle Ages, to its final disintegration in vulgar speech, with constant reference to the phonology and the morphology of the Romance languages as exhibited in the earliest written forms. Neuen Schwander.

103.—COLLOQUIAL AND MEDIAEVAL LATIN II. Two hours credit. Second semester, by appointment. A continuation of course 102.

Neuen Schwander.

104.—OLD FRENCH. Three hours credit. First semester, by appointment. Phonology and morphology of old French, with some discussion

of syntax. *Le Pèlerinage de Charlemagne à Jérusalem*, Aucassin et Nicolette. Must be preceded by courses 164 and 165 or their equivalents.
Galloo.

105.—HISTORY OF THE FRENCH LANGUAGE. Three hours credit. Second semester, by appointment. Its rise from Low Latin; the additions from other sources; its growth and modifications.
Galloo.

106.—MEDIÆVAL FRENCH LITERATURE. Three hours credit. Second semester, by appointment. From the first literary monuments to the Renaissance.
Mahieu.

107.—FRENCH LITERATURE OF THE SIXTEENTH CENTURY. Two hours credit. First semester, by appointment. The Renaissance in French literature. The beginning of classicism. The *Pléiade*.
Stanton.

108.—MOLIERE. Three hours credit. First semester, by appointment. Study of Molière; his life and surroundings, his plays—their sources and influence. One or more essays will be written, preferably in French.
Galloo.

150.—THE FRENCH ELEMENT IN ENGLISH. Three hours credit. Second semester, by appointment.
Neuen Schwander.

153.—HISTORY OF EARLY FRENCH LITERATURE. Three hours credit. First semester, by appointment.
Galloo, Mahieu.

154.—HISTORY OF MODERN FRENCH LITERATURE. Three hours credit. Second semester, by appointment.
Stanton.

155.—FRENCH LITERATURE OF THE SEVENTEENTH CENTURY. Two hours credit. First semester, by appointment.
Stanton.

156.—FRENCH LITERATURE OF THE EIGHTEENTH CENTURY. Two hours credit. Second semester, by appointment.
Neuen Schwander.

157.—THE ROMANTIC SCHOOL I. Three hours credit. First semester, by appointment.
Galloo, Mahieu.

158.—THE ROMANTIC SCHOOL II. Two hours credit. Second semester, by appointment.
Galloo, Mahieu.

159.—THE LITERARY MOVEMENT IN THE SECOND HALF OF THE NINETEENTH CENTURY I. Three hours credit. First semester, by appointment.
Galloo.

160.—THE LITERARY MOVEMENT IN THE SECOND HALF OF THE NINETEENTH CENTURY II. Three hours credit. Second semester, by appointment.
Galloo.

161.—DEVELOPMENT OF THE FRENCH NOVEL I. Two hours credit. First semester, by appointment.
Galloo.

162.—DEVELOPMENT OF THE FRENCH NOVEL II. Three hours credit. Second semester, by appointment.
Galloo.

163.—THE FRENCH DRAMA. Three hours credit. Second semester, by appointment.
Galloo, Mahieu.

164.—OLD FRENCH. Two hours credit. First semester, by appointment.
Galloo.

165.—OLD FRENCH. Two hours credit. Second semester, by appointment.
Galloo.

188.—TEACHERS' COURSE IN FRENCH. Three hours credit. First semester, by appointment.
Neuen Schwander.

110.—PROVENÇAL. Two hours credit. First semester, by appointment. Grandgent's *Provençal Phonology and Morphology*, Appel's *Provenzalische Chrestomathie* and Schultz-Gora's *Altprovenzalisches Elementarbuch*.
Neuen Schwander.

111.—PROVENÇAL. Two hours credit. Second semester, by appointment. A continuation of course 110.
Neuen Schwander.

120.—THE ITALIAN THEATER IN THE EIGHTEENTH CENTURY. Two hours credit. Second semester, by appointment. Lectures and reports.

The *Commedia dell' Arte*. Reading of selected comedies of Goldoni and tragedies of Alfieri. Careful study of a few typical works. Prerequisite, course 24, or its equivalent. Cram.

121.—EARLY ITALIAN. Three hours credit. Second semester, by appointment. Monaci's *Crestomazia italiana*; d'Ancona and Bacci's *Manuale della letteratura italiana*, vol. I; Rossi's *Storia della letteratura italiana*, vol. I. Prerequisite, course 80, or its equivalent. Cram.

The following course is open to undergraduates also (for description, see College section).

180.—DANTE Three hours credit. First semester, by appointment. Cram.

SOCIOLOGY.

Professors: BLACKMAR, SMITH.
Associate Professor: HELLEBERG.
Assistant Professor: BODENHAFFER.

100.—SEMINAR OF SOCIOLOGY. Two to ten hours credit. Either semester, by appointment. This is a research course for advanced students. Applicants for admission to the seminar must satisfy the instructor of their preparation and ability to undertake original investigation. Each student may pursue a definite line of work under the direction of the instructors. Helleberg.

101.—SEMINAR OF SOCIAL INVESTIGATION. Two to six hours credit. By appointment. A research course for advanced students. Applicants for admission to the seminar must satisfy the instructor of their preparation and ability to undertake original investigation. Each student may pursue a special line of social investigation. Blackmar.

102.—AMERICAN AND EUROPEAN CHARITIES. Five hours credit. By appointment. Research course. A study of charities administration in the United States and some of the principal cities of Europe. Personal investigation of American charitable institutions, with special reference to methods of state control. Bodenhaffer.

103.—PREPARATION FOR INSTITUTIONAL AND SOCIAL SERVICE. Five hours credit. Second semester, by appointment. A study of the administration of charitable, penal, and social institutions. A research course in the library is supplemented by investigation of institutions by visitation. Lectures by experienced officials. Preparation for special positions. Bodenhaffer.

104.—RESEARCH PROBLEMS IN CRIMINOLOGY. Five hours credit. Second semester, by appointment. The modern theories of criminality. Case-study of the life history of criminals. A critical analysis of methods of classification and reformation. Bodenhaffer.

105.—SOCIOLOGY AND THE LAW. Five hours credit. First semester, by appointment. A sociological approach to the development of the law and its function in society; the relation of various codes to social activities; the contemporary efforts to create a scientific jurisprudence.

150.—ELEMENTS OF SOCIOLOGY. Two hours credit. First and second semesters. Open to students who do not major in sociology. Blackmar.

151.—PRINCIPLES OF APPLIED SOCIOLOGY. Three hours credit. Second semester.

152.—SOCIAL PATHOLOGY. Two hours credit. First semester. Bodenhaffer.

153.—REMEDIAL AND CORRECTIVE AGENCIES. Two hours credit. Second semester. Bodenhaffer.

154.—PUBLIC OPINION. Three hours credit. Second semester. Helleberg.

- 155.—PSYCHOLOGICAL SOCIOLOGY. Three hours credit. Each semester. Helleberg.
- 156.—THE FAMILY. Two hours credit. Second semester. Helleberg.
- 157.—SOCIALISM. Two hours credit. First semester. Helleberg.
- 158.—GENERAL ANTHROPOLOGY. Two hours credit. First semester. Blackmar.
- 159.—ETHNOLOGY. Two hours credit. Second semester. Blackmar.
- 161.—CONTEMPORARY SOCIETY IN THE UNITED STATES. Three hours credit. First semester. Helleberg.
- 162.—DEVELOPMENT OF SOCIAL THEORY. Five hours credit. Second semester. Helleberg.
- 163.—SOCIAL SURVEYS. Three hours credit. First semester. Smith.
- 164.—MUNICIPAL SOCIOLOGY. Two hours credit. First semester. Smith.
- 165.—IMMIGRATION AND RACE PROBLEMS IN THE UNITED STATES. Three hours credit. First semester. Blackmar.
- 166.—VITAL STATISTICS. One hour credit. Second semester.
- 167.—EUGENICS. Three hours credit. Second semester. Blackmar.
- 169.—CRIMINOLOGY. Two hours credit. First semester, at 1:30. Bodenhafer.
- 170.—COMMUNITY ORGANIZATION. Two hours credit. Second semester. Smith.
- 171.—SOCIAL EVOLUTION. Two hours credit. Second semester, at 9:30. A study in the physio-psyche causes of social development. Social heredity. The origin and the perpetuation of social traits. Blackmar.

ZOOLOGY.

Professor: ALLEN.

Associate Professor: BAUMGARTNER.

Assistant Professors: JOHNSON, NOWLIN, ROBERTSON.

- 100.—SEMINAR. Students working for a degree with the major in the Department of Zoölogy will register in this course for credit in work done in preparation for their theses. Credit will be given only upon a satisfactory presentation of the subject matter of the thesis before the department faculty.
- 101.—PROBLEMS IN MORPHOLOGICAL ZOÖLOGY. Five or ten hours credit. Throughout the year. Allen or Baumgartner.
- 102.—PROBLEMS IN SYSTEMATIC AND DESCRIPTIVE ZOÖLOGY. Five or ten hours credit. Throughout the year. Johnson.
- 103.—PROBLEMS IN HISTOLOGY. Five or ten hours credit. Throughout the year, by appointment. Baumgartner.
- 104.—PROBLEMS IN VERTEBRATE PALEONTOLOGY. Five or ten hours credit. Throughout the year, by appointment. Allen.
- 105.—PROBLEMS IN EMBRYOLOGY. Five or ten hours credit. Throughout the year, by appointment. Allen.
- 106.—PROBLEMS IN GENETICS. Five or ten hours credit. Throughout the year, by appointment. Robertson.
- 107.—PROBLEMS IN PROTOZOÖLOGY. Five or ten hours credit. Throughout the year, by appointment. Nowlin.
- 108.—PROBLEMS IN PARASITOLOGY. Five or ten hours credit. Throughout the year, by appointment. Nowlin.
- 109.—PROBLEMS IN CYTOLOGY. Five or ten hours credit. Throughout the year, by appointment. Robertson.

- 151.—MAMMALS. Three hours credit. First semester, by appointment. Johnson.
- 152.—MAMMALIAN PROBLEMS. Two hours credit. Second semester. Johnson.
- 153.—ANIMAL HISTOLOGY. Five hours credit. First semester. Baumgartner.
- 154.—THE CELL. Five hours credit. First semester. Robertson.
- 155.—EMBRYOLOGY—DESCRIPTIVE AND EXPERIMENTAL. Five hours credit. Second semester. Allen.
- 156.—VERTEBRATE PALEONTOLOGY. Five hours credit. Second semester. Prerequisites, Zoölogy 61 or Geology 61. Allen.
- 157.—EVOLUTION OF BEHAVIOR. Three hours credit. Second semester. Nowlin.
- 158.—HISTOLOGICAL TECHNIQUE. Two hours credit. Second semester. Baumgartner, Robertson.
- 159.—ECONOMIC ORNITHOLOGY AND MAMMALOGY. Five hours credit. Throughout the year, by appointment. Johnson.
- 161.—VERTEBRATES OF THE PAST. Two hours credit. First semester. Allen.
- 163.—SYSTEMATIC ZOÖLOGY. Five or ten hours credit. Throughout the year, by appointment. Johnson.
- 164.—HEREDITY IN RELATION TO EUGENICS. Three hours credit. Throughout the year. Robertson.
- 171.—PROTOZOÖLOGY. Five hours credit. First semester. Nowlin.
- 172.—GENETICS. Five hours credit. Second semester. Robertson.
- 173.—ZOÖLOGICAL PROBLEMS. Three or five hours credit. Both semesters. The Staff.
- 174.—ZOÖLOGICAL CONFERENCE. One hour credit. Both semesters, by appointment. Graduate and advanced undergraduate students meet with the instructors for the discussion of current zoölogical problems. Reports on assigned subjects. Allen.

COMPARATIVE LITERATURE, PHILOLOGY AND LINGUISTICS.

In order to emphasize the work in comparative literature, comparative philology and comparative linguistics and to indicate to graduate students the opportunities of study in these fields, the following sections are introduced:

A. COMPARATIVE LITERATURE.

- 103.—INTRODUCTION TO COMPARATIVE LITERATURE. Three hours credit. Second semester. Whitcomb.
- 111.—EPIC POETRY. Three hours credit. First semester. Whitcomb.
- 104.—THE ROMANTIC SCHOOL. Three hours credit. Second semester. Owen.
- 107.—REGIONAL LITERATURE OF SPAIN. Three hours credit. Second semester. Osma.
- 106.—MEDIEVAL FRENCH LITERATURE. Three hours credit. Second semester. Mahieu.
- 107.—FRENCH LITERATURE OF THE SIXTEENTH CENTURY. Two hours credit. First semester. Stanton.
- 103.—GERMANIC MYTHOLOGY. Two hours credit. First semester. Kruse.

B. PHILOLOGY AND LINGUISTICS.

- 114.—HISTORY OF THE ENGLISH LANGUAGE. Three hours credit. Second semester. Burnham.
- 110.—ENGLISH PROSODY. Two hours credit. Whitcomb.
- 101.—HISTORICAL SPANISH GRAMMAR. Three hours credit. First semester. Owen.
- 108.—OLD CATALAN. Two hours credit. First semester. Osmá.
- 109.—OLD PORTUGUESE. Two hours credit. Second semester. Osmá.
- 100.—HISTORY OF THE GERMAN LANGUAGE. Two hours credit. Second semester. Sturtevant.
- 101.—GOTHIC. Two hours credit. Both first and second semesters. Sturtevant.
- 102.—OLD NORSE. Two hours credit. Both semesters. Sturtevant.
- 104.—OLD HIGH GERMAN. Two hours credit. First semester. Sturtevant.
- 105.—OLD SAXON. Two hours credit. Second semester. Sturtevant.
- 102.—COLLOQUIAL AND MEDIEVAL LATIN I. Two hours credit. First semester. Neuen Schwander.
- 103.—COLLOQUIAL AND MEDIEVAL LATIN II. Two hours credit. Second semester. Neuen Schwander.
- 105.—HISTORY OF THE FRENCH LANGUAGE. Three hours credit. Second semester. Galloo.
- 110.—PROVENÇAL I. Two hours credit. First semester. Neuen Schwander.
- 111.—PROVENÇAL II. Two hours credit. Second semester. Neuen Schwander.
- 104.—OLD FRENCH. Three hours credit. First semester. Galloo.

UNIVERSITY OF ILLINOIS LIBRARY

OCT 18 1920

SECTION III.

College of Liberal Arts and Sciences.

(109)

FACULTY.

- FRANK STRONG, Ph. D., President.
OLIN TEMPLIN, A. M., Dean and Professor of Philosophy.
DAVID L. PATTERSON, B. S., Assistant Dean and Professor of European History.
EPHRAIM MILLER, Ph. D., Emeritus Professor of Mathematics and Astronomy.
EDGAR H. S. BAILEY, Ph. D., Professor of Chemistry and Metallurgy.
ALEXANDER M. WILCOX, Ph. D., Professor of Greek.
LUCIUS E. SAYRE, Ph. M., Professor of Pharmacy.
FRANK W. BLACKMAR, Ph. D., Professor of Sociology.
CHARLES G. DUNLAP, Litt. D., Professor of English Literature.
EDWIN M. HOPKINS,* Ph. D., Professor of Rhetoric and English Language.
FRANK H. HODDER, Ph. M., Professor of American History and Political Science.
ERASMUS HAWORTH, Ph. D., Professor of Geology.
ARTHUR T. WALKER, Ph. D., Professor of Latin Language and Literature.
WILLIAM C. STEVENS, M. S., Professor of Botany.
WILLIAM A. GRIFFITH, Professor of Drawing.
EUGENIE GALLOO, A. M., Professor of Romance Languages and Literatures.
CHARLES S. SKILTON, A. B., Professor of Musical Theory.
IDA H. HYDE,* Ph. D., Professor of Physiology.
JAMES NAISMITH, M. D., Professor of Physical Education.
SAMUEL J. HUNTER, A. M., Professor of Entomology.
FREDERICK E. KESTER, Ph. D., Professor of Physics.
HAMILTON P. CADY, Ph. D., Professor of Chemistry.
BENNET M. ALLEN, Ph. D., Professor of Zoölogy.
EDMUND H. HOLLANDS, Ph. D., Professor of Philosophy.
FRANK B. DAINS, Ph. D., Professor of Chemistry.
ELMER F. ENGEL, A. M., Professor of German.
ARTHUR MACMURRAY, A. B., Professor of Public Speaking.
ELIZABETH C. SPRAGUE, Professor of Home Economics.
RAPHAEL D. O'LEARY, A. B., Professor of English.
ARTHUR J. BOYNTON, A. M., Professor of Economics.
CHARLES H. ASHTON, Ph. D., Professor of Mathematics.
HENRY C. THURNAU, Ph. D., Professor of German.
LEON N. FLINT, A. B., Professor of Journalism.
GEORGE E. COGHILL, Ph. D., Professor of Anatomy.
OLE O. STOLAND, Ph. D., Professor of Physiology.
WALTER S. HUNTER, Ph. D., Professor of Psychology.

* Absent on leave.

- WILLIAM M. HEKKING, B. P., Professor of Drawing and Painting.
CARL F. NELSON, Ph. D., Professor of Physiological Chemistry.
NOBLE P. SHERWOOD, A. M., Professor of Bacteriology.
ARTHUR L. OWEN, A. M., Professor of Hispanic Languages and Literatures.
HAROLD G. INGHAM, A. B., Acting Director of University Extension.
HAROLD DE F. BURDICK, Professor of Military Science and Tactics.
WALTER R. SMITH, Ph. D., Professor of Sociology.
HERMAN C. ALLEN, Ph. D., Professor of Chemistry.
SELDON L. WHITCOMB,* Litt. D., Professor of Comparative Literature.
LOUIS E. SISSON, A. M., Professor of English.
RAYMOND C. MOORE, Ph. D., Professor of Geology and Paleontology.
MILES W. STERLING, A. M., Associate Professor of Greek.
HANNAH OLIVER, A. M., Associate Professor of Latin.
MARTIN E. RICE, M. S., Associate Professor of Physics.
ALBERTA L. CORBIN, Ph. D., Associate Professor of German.
WILLIAM J. BAUMGARTNER, A. M., Associate Professor of Zoölogy.
HENRY O. KRUSE,† A. M., Associate Professor of German.
CLARENCE C. CRAWFORD, Ph. D., Associate Professor of European History.
WILLIAM S. JOHNSON, Ph. D., Associate Professor of English Language.
VICTOR E. HELLEBERG, A. B., Associate Professor of Sociology.
MARGARET LYNN, A. M., Associate Professor of English Literature.
ELISE NEUEN SCHWANDER, Ph. D., Associate Professor of Romance Languages.
WILLIAM W. DAVIS, Ph. D., Associate Professor of American History and Political Science.
ULYSSES G. MITCHELL, Ph. D., Associate Professor of Mathematics.
FLOYD C. DOCKERAY, Ph. D., Associate Professor of Psychology.
JOSEPH G. BRANDT, Ph. D., Associate Professor of Greek.
HERBERT B. HUNGERFORD, Ph. D., Associate Professor of Entomology.
ELLIS B. STOUFFER, Ph. D., Associate Professor of Mathematics.
BLAINE F. MOORE, Ph. D., Associate Professor of Political Science.
WILLIAM M. DUFFUS, A. M., Associate Professor of Economics.
GEORGE W. STRATTON, Ph. D., Associate Professor of Chemistry.
JOHN ISE, Ph. D., Associate Professor of Economics.
JOHN R. FRAZIER, Associate Professor of Drawing and Painting.
DINSMORE ALTER, Ph. D., Associate Professor of Astronomy.
ARTHUR J. MIX, Ph. D., Associate Professor of Botany.
WINTHROP P. HAYNES, Ph. D., Associate Professor of Geology, Mineralogy and Petrology.
SOLOMON LEFSCHETZ, Ph. D., Associate Professor of Mathematics.
EDWIN F. STIMPSON, B. S., Assistant Professor of Physics.
JAMES E. TODD, A. M., Assistant Professor of Geology and Mineralogy.
ALBERT M. STURTEVANT, Ph. D., Assistant Professor of German.
LULU GARDNER,† A. B., Assistant Professor of Rhetoric.
WILLIAM R. B. ROBERTSON, Ph. D., Assistant Professor of Zoölogy.
WALTER S. LONG, A. M., Assistant Professor of Chemistry.

* Absent on leave, second semester.

† Absent on leave.

- NADINE NOWLIN, A. M., Assistant Professor of Zoölogy.
GRACE M. CHARLES, Ph. D., Assistant Professor of Botany.
JOSEPHINE M. BURNHAM, Ph. D., Assistant Professor of English.
FRANK E. MELVIN, Ph. D., Assistant Professor of Modern European History.
ROSE R. MORGAN, A. M., Assistant Professor of Rhetoric.
AMIDA STANTON, A. M., Assistant Professor of Romance Languages.
HELEN G. JONES,* A. M., Assistant Professor of German.
SAMUEL O. RICE,† Assistant Professor of Journalism.
MAY GARDNER, A. B., Assistant Professor of Hispanic Languages.
CLARENCE ESTES, B. S., Assistant Professor of Chemistry.
MAXWELL FERGUSON, LL. B., Assistant Professor of Economics and Commerce.
ROBERT G. MAHIEU, Assistant Professor of Romance Languages.
HERMAN B. CHUBB, A. M., Assistant Professor of Political Science.
RAY Q. BREWSTER, A. M., Assistant Professor of Chemistry.
HOWARD W. ELSEY, A. B., Assistant Professor of Chemistry.
EDGAR WERTHEIM, B. S., Assistant Professor of Chemistry.
CHARLES E. JOHNSON, Ph. D., Assistant Professor of Zoölogy.
ELIZABETH C. MEGUIAR, Assistant Professor of Home Economics.
WALTER B. BODENHAFFER, A. M., Assistant Professor of Sociology.
JENS P. JENSEN, A. M., Assistant Professor of Economics and Commerce.
FLOYD E. ROWLAND, Ph. D., Assistant Professor of Chemistry.
ALICE WINSTON, A. M., Assistant Professor of Rhetoric.
JOSE M. OSMA, Assistant Professor of Hispanic Languages.
ANDREW J. NEWMAN, A. M., Assistant Professor of Economics and Commerce.
VIOLA J. ANDERSON, M. S., Assistant Professor of Home Economics.
FRANK L. FLEENER, A. M., Assistant Professor of Geology.
JOSE M. ALBALADEJO, Assistant Professor of Hispanic Languages.
CARLOS I. REED, A. B., Assistant Professor of Physiology.
WILLIAM A. DILL, A. B., Assistant Professor of Journalism.
LALIA V. WALLING, A. M., Instructor in Physiology.
MARIA L. BENSON, Instructor in Design and Ceramics.
SARA G. LAIRD, A. M., Instructor in Rhetoric.
HELEN R. HOOPES, A. M., Instructor in Rhetoric.
CAROLINE B. SPANGLER, A. B., Instructor in Rhetoric.
ESTHER L. SWENSON, A. M., Instructor in Rhetoric.
HAZEL K. ALLEN,* Ph. B., Instructor in Home Economics.
HAZEL H. PRATT, A. B., Instructor in Physical Education.
EMILY V. BERGER, A. B., Instructor in Chemistry.
PAUL B. LAWSON, M. S., Instructor in Entomology.
AGNES A. MURRAY, A. M., Instructor in Chemistry.
ELBERT L. TREECE, B. S., Instructor in Bacteriology.
CORNELIA M. DOWNS, A. B., Instructor in Bacteriology.
GORDON L. CRAM, A. M., Instructor in Romance Languages.
WILLIAM B. BROWN,* Instructor in Journalism.
ANNA MARM, A. M., Instructor in Mathematics.

* Absent on leave.

† Resigned, Feb. 1, 1920.

FLORENCE BLACK, A. B., Instructor in Mathematics.
 HENRY A. SHINN, A. B., Instructor in Public Speaking.
 JOHN A. HESS, A. M., Instructor in Romance Languages.
 NELLIE BARNES, A. B., Instructor in Rhetoric.
 EDWARD C. PERRY, A. B., Instructor in Romance Languages.
 JUSTICE N. CARMAN, A. B., Instructor in Romance Languages.
 ADELAIDE STEGER, A. B., Instructor in Physical Training.
 MARION LEWIS, Instructor in Journalism.
 JAMES B. McNAUGHT, A. M., Instructor in Bacteriology.
 CARL A. SWANSON, A. B., Instructor in Romance Languages.
 CORNELIUS GOUWENS, A. M., Instructor in Mathematics.
 FLORENCE M. CATE, A. M., Instructor in Romance Languages.
 ARTHUR G. BYRNS, B. S., Instructor in Hispanic Languages.
 AGNES M. BRADY, A. B., Instructor in Hispanic Languages.
 JESSIE A. CLINE, A. B., Instructor in Home Economics.
 ORA L. WEBB, A. B., Instructor in Home Economics.
 ELIZABETH K. STARK, A. M., Instructor in Psychology.
 HAZEL M. RICE, A. M., Instructor in Mathematics.
 NATHAN H. HUFFMAN, A. B., Instructor in Hispanic Languages.
 NANA E. DE ALBALADEJO, Instructor in Hispanic Languages.
 BEN E. BROWN, A. B., Instructor in Physics.
 CYRIL A. NELSON, Ph. D., Instructor in Mathematics.
 JOHN C. WARNER, A. B., Instructor in Physics.
 ROY TOWNE, A. M., Instructor in Romance Languages.
 EARL POTTER, A. B., Instructor in Journalism.
 LARRY M. PEACE, A. M., Preparator and Demonstrator in the Botanical Laboratory.
 BESSIE DOUTHITT, Assistant Instructor in Zoölogy.
 WILLIAM F. LANGE, B. S., Assistant Instructor in Chemistry.
 ROBERT M. ISENERGER, A. B., Demonstrator in Physiology.
 JOHN V. H. CHALLISS, A. B., Assistant Instructor in Chemistry.
 JAMES B. RAMSEY, A. B., Assistant Instructor in Chemistry.
 JOHN H. KORB, B. S., Assistant Instructor in Physiology.
 JAMES R. FOSTER, A. M., Assistant Instructor in Rhetoric.
 MYRA HULL, A. B., Assistant Instructor in Rhetoric.
 IVAN V. SNYDER,* Assistant Instructor in Romance Languages.
 ERMA A. SMITH, Assistant Instructor in Physiology.
 MAYME WHEELER,† A. B., Assistant Instructor in Rhetoric.
 MARY L. BICKNELL, A. B., Assistant Instructor in Zoölogy.
 EVA BATCHMAN, A. B., Assistant Instructor in Entomology.
 RALPH M. BUFFINGTON, A. B., Assistant Instructor in Chemistry.

ADMINISTRATIVE COMMITTEE.

OLIN TEMPLIN, *Chairman*.

D. L. Patterson.

L. N. FLINT.

F. B. DAINS.

W. S. JOHNSON.

N. P. SHERWOOD.

W. C. STEVENS.

J. G. BRANDT.

* Absent on leave.

† Resigned, Feb., 1920.

THE COLLEGE OF LIBERAL ARTS AND SCIENCES.

The College was the first school of the University to be organized. From its opening in 1866 it has offered to its students four years of liberal training, leaving in the main the development of the applied arts and sciences to the professional schools that have grown up around it.

DEGREES.

Graduates of the College who have completed the regular College course are admitted to the degree of *Bachelor of Arts*, except that, upon request, any candidate who has met the requirements for that degree will be admitted to the degree of *Bachelor of Science* instead; provided, the larger part of his work has been elected in science departments; and provided further, his application has the sanction of the department in which his major work has been done. Those who have completed two years of College work and two years in the School of Medicine are admitted to the degree of Bachelor of Science in Medicine.

ADMISSION.

By act of the state legislature all graduates of accredited high schools in Kansas are admitted to the Freshman class without examination or condition.

Candidates for admission who are not graduates of accredited Kansas high schools must offer, either on examination or satisfactory certificate, fifteen units from the following list:

ENGLISH.—Rhetoric and English literature, 3 or 4 units. Three units required.

MATHEMATICS.—Elementary algebra, $1\frac{1}{2}$ units; plane geometry, 1 unit; solid geometry, $\frac{1}{2}$ unit; plane trigonometry, $\frac{1}{2}$ unit; advanced algebra, $\frac{1}{2}$ unit. Elementary algebra and plane geometry are required.

FOREIGN LANGUAGE.—Latin, 1, 2, 3 or 4 units; Greek, 1, 2, 3 or 4 units; German, 1, 2, 3 or 4 units; French, 1, 2, 3 or 4 units; Spanish, 1 or 2 units. Three units in one language or two units in one language and one unit in another, are required.

PHYSICAL SCIENCES.—Physical geography, 1 or $\frac{1}{2}$ unit; physics, 1 unit; chemistry, 1 unit. One unit required.

BIOLOGICAL SCIENCES.—Botany, 1 unit; zoölogy, 1 unit; physiology, 1 or $\frac{1}{2}$ unit; biological science, 1 unit. One unit required.

HISTORY AND SOCIAL SCIENCE.—Greek and Roman history, 1 unit; medieval and modern history, 1 unit; English history, 1 unit; American history, 1 unit; economics, 1 or $\frac{1}{2}$ unit; civics, $\frac{1}{2}$ unit. One unit required.

MISCELLANEOUS.—Psychology, $\frac{1}{2}$ unit; methods of teaching and school management, $\frac{1}{2}$ unit; commercial law, $\frac{1}{2}$ unit; bookkeeping, $\frac{1}{2}$ unit; drawing, 1 unit; woodwork, 1 unit; forging, 1 unit; domestic science, 1 unit; domestic art, 1 unit; agriculture, $\frac{1}{2}$ or 1 unit; music, 1 unit. Not more than three units are accepted.

Any candidate from another state will be accepted on certificate, provided he is eligible to admission to the state university in that state, and provided he has completed the subjects required for graduation from an accredited Kansas high school.

Entrance Examinations.

Candidates for admission who are not graduates of accredited Kansas high schools may offer themselves for examination in the entrance subjects above specified. A statement in regard to the time of these examinations will be found on page 52 of Section I, "General Information."

Advanced Standing.

Credit for work of collegiate or professional standing is granted only on recommendation of the Advanced Standing Committee.

For regulations governing the granting of such credit, see Admission to Advanced Standing, Section I, page 50.

Special Students.

Persons of maturity and of serious purpose, who are not candidates for the College degree and who present satisfactory reasons for asking such exceptional consideration, may be admitted to the College as special students, subject to the provisions stated below.

Any one regularly enrolled in another school of the University may be admitted as a special student to College classes, but all applications for such enrollment must be accompanied by the recommendation of the Dean of the school concerned. Such students are subject to the same regulations as other special students.

Each candidate for admission as a special student must personally file with the Faculty Committee an application stating his reasons for his request, and must submit credentials from schools previously attended showing character and extent of preparation for the classes to which he desires admission. He must also submit to such examination as the committee or the department concerned may prescribe. This application must be renewed each semester.

The Faculty Committee, subject to the approval of instructors or heads of departments concerned, will determine what courses the candidate is prepared to pursue with profit, and will outline his program of studies for the semester. The Registrar will register a special student only upon the authorization of the Faculty Committee.

Special students are subject to the general regulations regarding prerequisites, number of hours, attendance, examinations, quality of work, etc. Failure in any course, or a low grade in previous work, may be considered sufficient ground for refusal to allow subsequent enrollment as a special student.

The Dean may withdraw the privileges of any special student who, in his judgment, is failing to comply with the spirit of the foregoing provisions.

If a special student later becomes a candidate for a degree, the credits he has received while enrolled as a special student will not be allowed to count towards this degree, except by the approval of the Faculty.

Extension Division Credits.

College students may offer towards the degree not to exceed sixty hours of credit received for work done in the Extension Division, but such credits will not be placed on their College record until thirty hours have been completed in residence.

All regulations governing the election of courses and final residence must have been observed by the candidate for the degree.

REGISTRATION.

All candidates for admission having certificates from schools accredited by the State Board of Education and all students of the University intending to pursue their studies during the ensuing year must present themselves for registration at the University on September 13, 14, 15, 1920. *Registration at a later date will be permitted only on the payment of a fee of one dollar.*

ENROLLMENT.

After registration has been completed with the Registrar, and fees have been paid, students should apply to the Dean for enrollment in their classes. Enrollment the first semester occurs September 14 and 15, and on the first day of the second semester. *Enrollment at a later date will be permitted only on the payment of a fee of one dollar*

Each student is assigned to a member of the faculty as his personal adviser, who will assist him in the selection of courses, the arrangement of his schedule, and any other matters upon which he may need assistance or advice. The faculty adviser is the assistant and representative of the Dean of the College, who is charged with the execution of all rules relating to enrollment.

COMPLETION OF REQUIREMENTS. A student may not be enrolled in any subject in advance of any other which, for any reason, he has yet to take, and which is listed in the schedule.

A student desiring enrollment in courses which presuppose certain subjects which he has not completed in the preparatory school must first make good such preliminary training within a high school or under a tutor authorized by the department concerned.

Students who have already decided to enter teaching after graduation should make that fact known so that they may be advised in the selection of their courses during the Freshman and Sophomore as well as the Junior and Senior years by faculty members designated for that purpose.

FAILURES AND CONDITIONS. If the record of a student shows that he has failed in a course, or if he has received a condition which has not been removed during the previous semester, he must reënroll in the course, if it is listed in the schedule.

THE CREDIT HOUR.

For each credit hour of any course in the College the student is expected to devote himself for three hours, either in the classroom, laboratory, or outside preparation.

SCHOLARSHIPS.

For information in regard to scholarships and aid funds available for College students, reference is made to page 57 of Section I, "General Information."

FEES AND EXPENSES.

For information in regard to fees and expenses reference is made to page 52, Section I, "General Information." All course fees must be paid before enrollment in classes will be permitted.

UNIVERSITY OF ILLINOIS LIBRARY

OCT 18 1928

THE CURRICULUM.

DEPARTMENTS OFFERING COURSES IN THE COLLEGE.

<i>Group.</i>	<i>Department.</i>
I. <i>English.</i>	English Language and Literature. Journalism. Public Speaking.
II. <i>Ancient Language.</i>	Ancient Languages and Literatures.
III. <i>Modern Language.</i>	Germanic Language and Literature. Romance Languages and Literatures. Hispanic Languages and Literatures.
IV. <i>Mathematics.</i>	Mathematics.
V. <i>Physical Science.</i>	Chemistry. Physics and Astronomy. Geology and Mineralogy.
VI. <i>Biological Science.</i>	Botany. Zoölogy. Entomology. Physiology. Bacteriology. Biochemistry. Anatomy.
VII. <i>History.</i>	History and Political Science. Economics and Commerce. Sociology.
VIII. <i>Philosophy.</i>	Philosophy and Psychology.
IX. <i>Miscellaneous.</i>	Home Economics. Physical Education. Design. Music.
X. <i>Professional.</i>	Law (fifteen hours, open to College Seniors). Medicine. (See Medicine under "Description of Courses.") Engineering (fifteen hours, open to College students). Education (fifteen hours, open to College students). Fine Arts (fifteen hours, open to College Juniors and Seniors). Military Science (fifteen hours, open to College students).

REGULATIONS GOVERNING THE ELECTION OF COURSES.

In the choice of courses from these groups and departments the student must conform to the following regulations:

FRESHMAN-SOPHOMORE REQUIREMENTS. During the first semester every Freshman must attend a weekly lecture on hygiene, and spend three hours a week in the gymnasium. During the second semester he must spend three hours a week in the gymnasium.

During the entire year every Sophomore must spend two hours a week in the gymnasium.

Before the beginning of the Junior year the student must have com-

pleted sixty hours, chosen from the list of courses open to Freshmen and Sophomores in accordance with the following requirements:

a. At least five hours must be taken from each of six of the first eight groups.

b. Not more than twenty hours may be taken in one department.

c. Rhetoric, five hours, must be taken by all Freshmen not offering it as a fourth year of entrance English. Credits for rhetoric are given provisionally. (See announcement of course.)

d. Freshmen and Sophomores *may not carry more than ten hours in one group at one time.*

JUNIOR-SENIOR REQUIREMENTS. The work of the Junior and Senior years must include a minimum of sixty hours, chosen from the courses offered by the various departments, but not more than twenty hours may be in courses open to either Freshmen or Sophomores.

Juniors and Seniors *may carry not more than twelve hours in one group at one time.*

THE LAST THIRTY HOURS MUST BE DONE IN RESIDENCE.

MAJOR REQUIREMENTS. Before graduation the student must complete a major course of not less than twenty hours nor more than forty hours in one department, and not less than thirty hours nor more than sixty hours in the group including the major department. At least twelve hours of work in satisfaction of the department major requirements must be in courses not open to Freshmen or Sophomores.

The courses constituting a departmental major must be chosen under the supervision of the faculty of the department concerned.

In the selection of a major the School of Medicine is considered a department.

FREE ELECTIVES. The work required for graduation not included in the major course is to be chosen subject to the restrictions that not more than twenty-five hours may be in any department, and not more than forty hours may be in any group other than the one in which the major course is elected.

RULE FOR STUDENTS HAVING ADVANCED CREDITS. Students who have been granted advanced credits shall so select their studies that in the one hundred twenty hours offered for the degree the regulations governing the distribution of work shall be satisfied so far as possible; provided, that advanced credit in excess of the maximum prescribed for majors and minors may be granted the candidate at the time of his matriculation. Students admitted to Junior standing with a deficiency must meet the requirements respecting studies of the first two years only to the extent of their deficiency.

AMOUNT OF WORK TO BE CARRIED AT ONE TIME. Students of the College must be enrolled in not less than fourteen nor more than eighteen hours work, including hygiene and gymnasium, but all applications for enrollment are subject to the approval of the Dean. When the past record or current work of a student indicates that he is unable to carry advantageously the amount of work permitted by the above regulation, he may be limited in his enrollment to such extent as may be considered advisable in his case. The faculty urges students to confine themselves to the average number of fifteen hours of class work, and thus devote four full years to the completion of their undergraduate work. Experience has shown that the crowding of the undergraduate courses results in serious loss in the quality of the work accomplished.

DUPLICATION OF COURSES. No course may be chosen which substantially duplicates work for which credit has already been granted, either in the College or preparatory school.

AMOUNT OF WORK REQUIRED FOR GRADUATION. In order to be an applicant for a degree from the College of Liberal Arts and Sciences a

student must complete 120 hours of class work, in addition to required hygiene in the Freshman year and required gymnasium work in the Freshman and Sophomore years.

STUDENT'S RESPONSIBILITY. The individual student will be held responsible for the election of his courses in conformity with the preceding regulations.

PROPORTION OF HIGH GRADES REQUIRED FOR DEGREE. In order to be accepted as a candidate for the bachelor's degree, a student must have received a grade of A, B, C, I (one) or II in at least 90 of the 120 hours offered for the A. B. degree or of the number of hours required for the degree of A. B. or B. S. in medicine. Any student admitted to advanced standing will be accepted as a candidate for a degree, provided his credits offered for graduation conform to the foregoing regulations and provided he receives A, B, C, I (one) or II on three-fourths of the work which he has done in residence at the University of Kansas.

COLLEGE CREDIT FOR PROFESSIONAL COURSES.

Juniors and Seniors in the College are permitted to enroll in certain courses offered in the professional schools and count the credit received for such work towards the bachelor of arts degree, *but no student is permitted to offer credit from more than one professional school.* The amount of credit that may be thus used is subject to the limitations indicated below. Students desiring to avail themselves of this opportunity must register in the professional school as well as in the College, but in enrollment the regulations of the College Faculty governing quantity and character of courses elected must be observed.

SCHOOL OF LAW.—Seniors in the College may offer fifteen hours from certain courses in the curriculum of the School of Law. See Section VI.

SCHOOL OF EDUCATION.—Students in the College may elect not to exceed fifteen hours from certain courses in the School of Education. See Section IX.

SCHOOL OF ENGINEERING.—A maximum of fifteen hours may be elected by the College student from certain courses offered in the School of Engineering. See Section IV.

SCHOOL OF FINE ARTS.—Juniors and Seniors in the College may be enrolled in not to exceed fifteen hours of certain courses in the School of Fine Arts. See Section V.

SCHOOL OF MEDICINE.—For conditions of election of courses in the School of Medicine, see Section VIII.

STATE TEACHERS' CERTIFICATE.

Graduates of the College will be recommended for the state teachers' certificate, provided they have credit in professional branches in education to the amount of 18 semester hours, including not less than 3 semester hours each in general psychology, educational psychology or educational theory, and educational administration, and 9 semester hours additional in professional branches allied to those herein mentioned; and provided the scholarship record shows at least as many hours rated A or B as it shows hours rated C or D.

UNIVERSITY TEACHERS' DIPLOMA.

Graduates of the College will be recommended for the University Teachers' Diploma by the School of Education if they complete the requirements set forth in the curriculum described in the School of Education section of the Catalog. This diploma also entitles the holder

to the state teachers' certificate described above, but represents a more adequate preparation for teaching than the minimum requirements set by the State Board of Education.

RESERVE OFFICERS' TRAINING CORPS.

Students of the College will be admitted to courses offered by the Reserve Officers' Training Corps with a maximum credit of fifteen hours that may be counted in satisfaction of the requirements for the bachelor's degree. Reference is made to Section XII for description of these courses.

DESCRIPTION OF COURSES.

ANATOMY.

Professor: COGHILL (Head of Department).

Professor: TRACY.

Assistant Professor: SHEPPARD.

Assistant Instructors: BROWN, FOSTER.

Technician: STONE.

51.—INTRODUCTORY HUMAN ANATOMY. Three hours credit. First semester, at 8:30. This course concerns the more important structures and relations of the body. It is planned particularly for the benefit of students who anticipate work in physical education, nursing and social service. Dissections are not required, but dissected parts and models are freely used.

71-80.—Courses offered in the School of Medicine as numbers 1, 2, 3, 4, 7, 9, and 10 are open to students registered in the College as, respectively, numbers 71, 72, 73, 74, 77 and 80. In these courses above 70 a prerequisite of ten hours of biology is required.

ANCIENT LANGUAGES.

Professors: WILCOX, WALKER (Head of Department).

Associate Professors: STERLING, OLIVER, BRANDT.

EQUIPMENT. The department is well supplied with wall maps, books, photographs, slides, and antiquities illustrating many phases of ancient life. Its library equipment of some 6,000 volumes includes complete sets of the more important classical journals. For a somewhat detailed statement of the casts, plates, and photographs available for the work of the department, see the description of the Classical Museum, in Section XII.

LATIN.

ADVICE AS TO CHOICE OF COURSES. Those who intend to take only five hours of Latin to satisfy a group requirement must take course 1 if they have entered with no Latin, course 2 if with one unit, course 3 if with two units, course 4 if with three units. If they have entered with four units, they may select any five hours out of courses 5, 6, 7, and 8. Course 10 is not accepted as part of the group requirement.

Except by special arrangement, those who intend to major in Latin must complete courses 5, 7, 9, and 12, before electing Junior and Senior courses. Course 10 is also required, and should be taken early. Course 50 should be a part of the Junior work.

Those who wish to do the best work in Latin, especially those who look forward to graduate study in the subject, will need Greek and a reading knowledge of French and German.

1.—ELEMENTARY LATIN. Five hours credit. First semester, at 10:30. Though intended as a preparation for the further study of Latin, this course is planned largely for those whose chief interest is in English or the modern languages; general principles of language structure and development and the influence of Latin on English are emphasized as much as possible. Open to all who have had no Latin in the high school.
Oliver.

2.—CÆSAR (four books). Five hours credit. Second semester, at 10:30. Weekly exercises in Latin composition. Open to those who have had course 1 or its equivalent and have not read Cæsar in the high school.
Oliver.

3.—CICERO (six orations). Five hours credit. First semester, at 8:30. Weekly exercises in Latin composition. Open to those who have had course 2 or its equivalent and have not read Cicero in the high school.
Brandt.

4.—VERGIL'S *ÆNEID* (six books). Five hours credit. First semester, at 11:30. With the study of mythology and careful practice in metrical reading. The chief emphasis will be laid on the literary side of the work. Open only to those who have had three units of Latin, not including Vergil.
Oliver.

5.—CICERO (*De Senectute*). Three hours credit. Both semesters, at 9:30. With prose composition and a thorough review of the grammar. Open to those who have had four units of Latin, recommended to all who expect to take further courses in Latin, and required of all who expect to prepare for teaching Latin.

First semester, Brandt; second semester, Oliver.

6.—LIVY (one book). Two hours credit. First semester, at 9:30. This course is intended to accompany course 5, but may be omitted by well-prepared students.
Oliver.

7.—HORACE (*Odes*). Three hours credit. Second semester, at 10:30. With careful practice in metrical reading. The chief emphasis is laid on the literary side of the work. Must be preceded by course 4; should be preceded by either 5 or 6.
Oliver.

8.—TERENCE (two plays). Two hours credit. Second semester, at 10:30. Must be preceded by course 5.
Walker.

9.—CICERO'S LETTERS. Three hours credit. First semester, at 10:30. The chief emphasis is laid on the historical points involved, so that the student gets a good knowledge of the period in which Cæsar and Cicero lived. Must be preceded by five hours beyond course 4. It is strongly recommended that course 12 be taken at the same time.
Walker.

11.—ROMAN PRIVATE LIFE. One hour credit. Second semester, Tuesday, at 8:30. Johnston's *Private Life of the Romans*, supplemented by occasional lectures and the use of illustrative material.
Oliver.

12.—LATIN COMPOSITION. Two hours credit. First semester, at 10:30. Part I or Part II of Nutting's *Advanced Latin Composition*, or an equivalent. Intended to accompany course 9, but may be taken earlier by well-prepared students, the only necessary preparation being given in course 5. Required of all who wish a recommendation from the department as teachers of Latin.
Walker.

50.—ADVANCED LATIN COMPOSITION. Two hours credit. Second semester, at 1:30. Prerequisite, course 12. Required as part of major.
Walker.

Each of the following reading courses, 51 to 59, inclusive, must be preceded by at least eleven hours from courses 5 to 12, inclusive.

51.—PLAUTUS. Two hours credit. Second semester, at 8:30.

Brandt.

52.—VERGIL'S *ECLOGUES* AND *GEORGICS*. Two hours credit. (Not given in 1920-'21.)

53.—CATULLUS, *TIBULLUS*, AND *PROPERTIUS*. Two hours credit. (Not given in 1920-'21.)

54.—PLINY'S LETTERS. Two hours credit. First semester, at 1:30.
Walker.

55.—HORACE (*Satires* and *Epistles*). Two hours credit. (Not given in 1920-'21.)

56.—LUCRETIVUS. Three hours credit. (Not given in 1920-'21.)

57.—THE *ANNALS* OF TACITUS. Three hours credit. Second semester, at 2:30.
Walker.

58.—JUVENAL. Three hours credit. (Not given in 1920-'21.)

59.—LITERATURE OF THE EMPIRE. Three hours credit. First semester, at 9:30. A study of the history of literature under the empire, supplemented by the reading of portions of the most important works.

Oliver.

60.—CÆSAR'S GALLIC CAMPAIGNS. Three hours credit. Second semester, at 1:30. A critical study of the Gallic War, with especial reference to military, historical, and geographical questions. The course is intended primarily as an introduction to the methods of the graduate seminar, and secondarily as a practical course for teachers. Open to Seniors.

Walker.

61.—VERGIL. Three hours credit. A rapid survey of the contents of the *Æneid*, with a study of the motives of the poem and Vergil's method of handling his material. A critical study of a few passages which involve difficulties of interpretation or of textual criticism. It is recommended that this course be preceded or accompanied by course 52. Open to Seniors. (Not given in 1919-'20.)

COURSES WHICH REQUIRE NO KNOWLEDGE OF THE LATIN LANGUAGE.

10.—HISTORY OF ROMAN LITERATURE. Two hours credit. Second semester, at 9:30. Mackail's *Latin Literature*, supplemented by lectures and assigned readings in English translations of the more important authors.

Oliver.

62.—ROMAN POLITICAL INSTITUTIONS. Three hours credit. A study of the development and form of the Roman governmental system through the republic and the early empire. The course will be conducted by lectures and assigned readings. (Not given in 1920-'21.)

63.—LATIN POETRY IN TRANSLATIONS. Three hours credit. Second semester, at 8:30. Selections from the epic, lyric, dramatic, and pastoral fields will be studied, (*a*) in their relation to corresponding literary forms in Greece, (*b*) as national poetry, and (*c*) in their relation to subsequent development in these fields. Continues, but is not necessarily preceded by, courses 85 and 86.

Brandt.

GREEK.

21.—ELEMENTARY GREEK. Five hours credit. First semester, at 9:30. Introductory course, covering the forms, syntax, and vocabulary necessary as a foundation for reading the literature.

Sterling.

22.—XENOPHON'S ANABASIS. Five hours credit. Second semester, at 9:30. Application of principles learned in the preceding course, with a study of Xenophon's life and works.

Sterling.

23.—HOMER'S ILIAD. Three hours credit. First semester, at 10:30. Reading of as much as possible in the original, and the rest in translation. Study of Homeric forms and versification.

Sterling.

24.—PLATO'S APOLOGY, CRITO, and selections from the *Phædo* and *Symposium*. Three hours credit. Second semester, at 10:30. Study of the life and work of Socrates.

Sterling.

25.—GREEK TRAGEDY. Three hours credit. First semester, at 11:30. The *Antigone* of Sophocles and *Iphigenia in Tauris* of Euripides. Study of the Greek theater and dramatic form.

Sterling.

71.—ELEMENTARY GREEK. Five hours credit. First semester, at 1:30. The same as course 21, except that more work will be required.

Sterling.

72.—XENOPHON'S ANABASIS. Five hours credit. Second semester, at 1:30. The same as course 22, except that more will be read.

Sterling.

73.—HOMER'S ILIAD. Three hours credit. First semester, at 2:30, or

by appointment. Reading of the whole book in the original, with critical study of select portions. Study of the Epic and Homeric life and times.
Brandt.

74.—PLATO'S GORGIAS OR REPUBLIC. Three hours credit. Second semester, at 3:30, or by appointment. Outside reading of other dialogues of Plato. Study of the life and thought of his time. Sterling.

75.—LYRIC POETRY. Two hours credit. Second semester, at 2:30, or by appointment. Selections from elegiac, iambic, and melic poetry.
Brandt.

76.—GREEK COMEDY. Two hours credit. First semester, at 8:30, or by appointment. The Clouds and Frogs of Aristophanes. Study of the origin and development, form and content of Greek comedy. Sterling.

77.—HOMER'S ODYSSEY. Three hours credit. Reading of the whole book in the original, with critical studies of select portions. (Not given in 1919-'20.)

78.—ALEXANDRIAN LITERATURE. Three hours credit. Theocritus, Apollonius Rhodius, and the Anthology. Study of pastoral poetry and the late epic, and their influence on Latin and later poetry. (Not given in 1919-'20.)

79.—THUCYDIDES. Two hours credit. Reading of as much as possible in the original, and the rest in translation. Studies in his style and historical method compared with Herodotus and later and modern historians. (Not given in 1919-'20.)

80.—ARISTOTLE. Two hours credit. The Poetics, and selections from the Politics and Ethics. Study of Aristotle's place in the history of thought. (Not given in 1919-'20.)

FOR STUDENTS OF THE NEW TESTAMENT.

31.—ELEMENTARY NEW TESTAMENT GREEK. Five hours credit. Second semester, at 10:30. An introductory course for students who have no knowledge of Greek and wish to learn to read the New Testament in the original.
Sterling.

32.—NEW TESTAMENT I. Two hours credit. First semester, at 11:30. Reading of as much of the New Testament in the original as possible. Prerequisite, course 31, or 21 and 22.
Sterling.

82.—NEW TESTAMENT II. Two hours credit. First semester, at 11:30. The same as course 32, except that more work will be required.
Sterling.

FOR STUDENTS OF ENGLISH AND NATURAL SCIENCES.

33.—THE GREEK IN ENGLISH. Three hours credit. First semester, at 8:30. A study of English etymology, with especial reference to Greek. Only so much Greek is studied as is necessary for the end in view. This course may not be used to satisfy a Freshman-Sophomore group requirement.
Sterling.

COURSES WHICH REQUIRE NO KNOWLEDGE OF THE GREEK LANGUAGE.

85.—GREEK POETRY IN TRANSLATIONS. Three hours credit. First semester, at 11:30. The epic and lyric poetry of the classic and Alexandrian ages. Study of form and content and influence on later poetry.
Brandt.

86.—THE GREEK DRAMA IN TRANSLATIONS. Two hours credit. Second semester, at 11:30. Ten to twelve dramas of Æschylus, Sophocles, Euripides, and Aristophanes are read and discussed from the points of view of form and content and influence on later and modern dramas.
Brandt.

87.—GREEK PROSE MASTERPIECES IN TRANSLATIONS. Three hours credit. Second semester, at 2:30. Study of the form and content and in-

fluence of the principal works of the historians, orators, and philosophers; especially Herodotus, Thucydides, Demosthenes, and Plato. Sterling.

88.—GREEK ARCHITECTURE. Two hours credit. First semester, at 11:30. This course includes the fundamental principles of all styles, with special reference to the survivals and revivals of Greek elements. The result ought to be a knowledge of all historic styles, and not simply the Greek. Brandt.

89.—GREEK SCULPTURE AND PAINTING. Three hours credit. Second semester, at 11:30. This course includes, for purposes of comparison and appreciation, a summary view of the sculpture and painting of later and modern times. Brandt.

ASTRONOMY.

(See Physics and Astronomy.)

BACTERIOLOGY.

Professor: SHERWOOD (Chairman of Department).
Instructors: TREECE, DOWNS, McNAUGHT.

EQUIPMENT. The laboratories are provided with sterilizers, incubators, refrigerators, centrifuges, glassware, etc. A compound microscope with high-power lens, a set of stains, and other equipment are allotted each student. The water survey laboratory is equipped for both bacteriological and chemical investigation, and is available to a few well-prepared research students by special arrangement.

ADVICE AS TO CHOICE OF COURSES. Course 1, course 50, or course 51 is a prerequisite for all subsequent courses in bacteriology. Each is directly concerned with the application of bacteriology to human problems. Students who plan to study bacteriology with the expectation of teaching the subject, or of entering a public-health laboratory, should complete the following courses in other departments: Inorganic chemistry, qualitative analysis, organic chemistry, quantitative analysis, physiological chemistry, general morphology of plants, elementary zoölogy, animal histology, parasitology, German (15 hours), human anatomy, medical physiology, and pathology.

Students expecting to go into medicine should not fail to enter the section of general bacteriology that is prescribed for medical students. See the announcement of the department of bacteriology in the School of Medicine.

50.—GENERAL BACTERIOLOGY. Five hours credit. Both semesters; 8:30 to 10:30; 10:30 to 12:30. Lectures and laboratory work. The lectures are largely illustrated and treat problems connected with general bacteriology and with the relation of bacteria to public health. Laboratory work deals with the preparation of media, cultural and staining methods, diagnostic tests, and the examination of bacteria that bear some relation to everyday life. Prerequisite, chemistry 1 or its equivalent. Sherwood, Treece, and Downs.

53.—BACTERIOLOGY OF FOODS AND WATER. Five hours credit. Second semester, 8:30 to 10:30. Examination of milk, oysters, meats, etc., with supplementary lectures. Treece, McNaught.

54.—SPECIAL METHODS IN BACTERIOLOGY. Five hours credit. First semester, 10:30 to 12:30. The laboratory work embraces the use of special media, the preparation of vaccines, and diagnostic technic, such as that used in public health laboratories. Methods in sanitary examination of water constitute part of the course. Downs, McNaught.

55.—BACTERIOLOGY OF SOILS. Two hours credit. Second semester, 1:30 to 3:30. A laboratory study of the influence exerted by bacteria on the composition of soils. Offered 1919-'20. McNaught.

57.—**IMMUNOLOGY.** Five hours credit. First semester, 10:30 to 12:30. Laboratory study of precipitins, agglutinins, bacteriolysins, and complement fixation. Downs, McNaught.

58.—**PATHOGENESIS** Five hours credit. First semester, 8:30 to 10:30. A detailed study of lesions caused by bacteria. Prerequisite, course 50 and animal histology. Offered in 1919-'20. Sherwood.

60.—**BACTERIOLOGICAL JOURNALS.** One hour credit. Both semesters, by appointment. Reviews and discussions of current bacteriological literature. Sherwood.

61.—**SPECIAL PROBLEMS IN BACTERIOLOGY.** Two to ten hours credit. Both semesters, by appointment. Special work along some definite line with a view to obtaining familiarity with a particular kind of laboratory procedure. Sherwood and the instructor concerned.

BIOCHEMISTRY.

Professor: NELSON.
Instructor: STREM.

College students desiring to major in biochemistry should elect (1) Courses 2, 3, 51, 61 or 62 in the Department of Chemistry; (2) Ten credit hours from courses in biochemistry, and (3) Ten credit hours from approved Junior and Senior courses in the departments of anatomy, bacteriology, botany, chemistry, home economics, physiology or zoölogy. For other courses offered see School of Pharmacy.

50.—**BIOLOGICAL CHEMISTRY I.** Three hours credit. Second semester. A survey of the field of biochemistry. Lectures, quizzes, laboratory work. The principal topics studied are the physical chemistry of protoplasm, proteins, carbohydrates, lipins. Nelson and assistants.

51.—**BIOLOGICAL CHEMISTRY II.** Three hours credit. First semester. A continuation of course 50. The principal topics dealt with are the chemistry of foods, catalysis, enzymes and enzyme action, salivary, peptic and intestinal digestion, the chemistry of blood, bile, urine, feces, metabolism in health and disease. Nelson and assistants.

52.—**ADVANCED BIOLOGICAL CHEMISTRY.** Laboratory work, advanced reading, conferences and reports on selected topics. Two, three or five hours credit. Either semester. Nelson.

BOTANY.

Professor: STEVENS (Chairman of Department).
Associate Professor: MIX.
Assistant Professors: CHARLES, STERLING.
Preparator and Demonstrator: PEACE.

EQUIPMENT. The equipment embraces microtomes, paraffin baths, etc., for histological work, simple and compound microscopes for each student, individual sets of apparatus for physiological experiments, and equipment for advanced work in plant physiology and pathology, a good herbarium for reference in taxonomy, sets of microscopic slides for each student, and abundant morphological material. There is a departmental library adjoining the laboratories.

ADVICE AS TO CHOICE OF COURSES. Courses 1 and 2 are elementary in their respective fields and are without prerequisites. Not more than one of these elementary courses should be taken without consultation with the department. Students who are preparing to teach botany should take courses 1, 2 or 52, 3, 4, 50, 60, 61, 62, and bacteriology 50. Courses 2 or 52 and 55 in botany and 50 in bacteriology afford a good basis for sanitation. Courses 3, 60, and 62 are fundamental to scientific plant culture. Botany 1 or 2, 4, 5, and 61 and bacteriology 50 would be especially useful to students in home economics. Courses 3, 4, 50, 61, and

62 are fundamental to arboriculture, city forestry, and the horticultural side of landscape and garden design.

1.—THE LIVING PLANT. Five hours credit. Both semesters. Three sections. Lectures and recitations, M. W. F., 8:30, 10:30 and 1:30. Laboratory, Tu. Th., 8:30 to 10:20, 10:30 to 12:30 and 1:30 to 3:30. What plants reveal about the fundamental problems of life, and their relation to our welfare. Lectures, demonstrations, and recitations. Fee, \$1.

Stevens, Charles, Sterling, Mix.

2.—GENERAL MORPHOLOGY OF PLANTS. Five hours credit. First semester. Lectures and recitations, Tu. Th., at 10:30. Laboratory, M. W. F., 10:30 to 12:20. A general survey of the great groups of plants to show the important steps in the evolution of the plant kingdom. Fee, \$2.

Charles.

3.—PLANT PHYSIOLOGY. Five hours credit. Second semester. Laboratory, M. W. F., 10:30 to 12:20. Lectures and recitations, Tu. Th., 11:30. The physiological activities of plants. Intake and outgo of material and energy, photosynthesis, digestion, translocation, storage, assimilation, respiration, excretion, irritability, and tropic responses, etc. Prerequisite, course 1 or its equivalent, or 2. Desirable antecedent, chemistry. Fee, \$2.

Mix.

4.—PLANT ANATOMY. Five hours credit. First semester. Laboratory, M. W. F., 10:30 to 12:20. Lectures and recitations, Tu. Th., at 11:30. A study of plant tissues with special reference to their development and functions; plant products, their origin and physiological and biological significance; histological technique. Laboratory work, recitations and lectures. Prerequisite, course 1 or its equivalent, or 2. Fee, \$2.

Stevens.

5.—ECONOMIC PLANT GEOGRAPHY. Two hours credit. Second semester, at 9:30. The effect of climate and soil conditions of different regions of the earth on the natural plant life of these districts and their relation to the crop plants of economic value for timber or for the world's supply of food.

Charles.

50.—SYSTEMATIC BOTANY. Five hours credit. First semester. Lectures and recitations, Tu. Th., at 9:30. Laboratory, M. W. F., 8:30 to 10:20. Field trips Saturday mornings till November. Classification of flowering plants, with field study of local flora, and preparation of an herbarium. Prerequisite, course 1 or 2, or equivalent. Fee, \$1.

Charles.

52.—GENERAL MORPHOLOGY OF PLANTS. Five hours credit. Second semester. Lectures and recitations, Tu. Th., 2:30. Laboratory, M. W. F., 1:30 to 3:30. A study of types of plants to show the development of the plant kingdom. Fee, \$2.

Charles.

55.—MORPHOLOGY OF ALGÆ. Three or five hours credit. Second semester, by appointment. An advanced course in the algæ with particular attention to life histories, local distribution, and relation to water supplies. Prerequisite, course 2 or equivalent. Fee, \$2.

Charles.

56.—MORPHOLOGY OF FUNGI. Three hours credit. Second semester, by appointment. Lectures, recitations, and laboratory work on the structure and life histories of fungi. Prerequisite, course 1 or 2, or equivalent. Fee, \$2.

Charles.

57.—MORPHOLOGY OF BRYOPHYTES AND PTERIDOPHYTES. Three or five hours credit. First semester, 1:30 to 3:30. An advanced course on the development and classification of liverworts and mosses. Lectures and laboratory work. Prerequisite, course 2 or equivalent. Fee, \$2.

Charles.

58.—PROBLEMS IN THE MORPHOLOGY OF SPERMATOPHYTES. Five hours credit. Both semesters, by appointment. A study of the forms and structures of plant members under different environments. Laboratory work, field work, and reading. Fee, \$1.

Stevens.

59.—PROBLEMS IN THE MORPHOLOGY OF THALLOPHYTES AND ARCHGONIATES. Five hours credit. Both semesters, by appointment. A study of the structure, development, or distribution of plants of these groups. Laboratory, field work, and reading. Prerequisite, course 2 or equivalent, and advanced work in the group to be investigated. Charles.

60.—AGRICULTURE. Three hours credit. First semester, 8:30 to 10:20. A course dealing with the scientific principles underlying plant production and soil management. This course must be taken in conjunction with entomology 60. Prerequisite, course 1 and entomology 1, or their equivalents. Fee, \$2.

61.—TREES AND SHRUBS. Three hours credit. Second semester, M. W. F., at 11:30. A study of the nature, planting, and care of the trees and shrubs of special importance for home grounds, streets, and parks, and introduction to landscape design. Lectures, reading, and field work. Stevens.

62.—PLANT PATHOLOGY. Five hours credit. First semester, 1:30 to 3:20. Diseases of cultivated plants, their nature, cause and control. Lectures, recitations, and laboratory work. Prerequisite, course 1 or its equivalent, or 2. Desirable antecedent, course 3. Fee, \$2. Mix.

63.—METHODS IN PLANT PATHOLOGY. Five hours credit. Second semester, 3:30 to 5:20. A study of methods for the control of plant diseases, technique of isolation, culture, and inoculation of plant parasites. Lectures, recitations, laboratory and field work. Prerequisite, course 62 or its equivalent. Fee, \$2. Mix.

64.—PROBLEMS IN PLANT PATHOLOGY. Three to five hours credit. Both semesters, by appointment. Original investigation of problems in plant pathology. Prerequisites, courses 3, 62 or its equivalent, and bacteriology 50. Should be preceded or accompanied by course 63. Open only to Seniors and graduates. Fee, \$2. Mix.

CHEMISTRY.

Professors: BAILEY, CADY, DAINS, ALLEN.

Associate Professor: STRATTON.

Assistant Professors: LONG, ESTES, BREWSTER, ELSEY,

WERTHEIM, ROWLAND.

Instructors: BERGER, MURRAY, RAMSAY, BUFFINGTON,

WHITE, CHALLIS.

EQUIPMENT. The department is well supplied with the necessary and usual apparatus for lecture illustration and demonstration, for laboratory work in the undergraduate courses, together with adequate equipment for effective research work in physical, organic, inorganic, analytical, industrial, and metallurgical chemistry. The liquid-air plant offers somewhat unusual opportunities for investigations at low temperatures. The department possesses a library of 3,000 volumes, consisting of the more important sets of periodicals and standard works of reference.

ADVICE AS TO CHOICE OF COURSES. Students desiring to become professional chemists should select courses 2, 3, 51, 61 or 62, 71, and 90. The remainder of the possible forty hours in chemistry should be devoted to the subjects which will best fit each student for his chosen work.

Those desiring to teach should select not less than twenty-five hours, which should include courses 2, 3, 51, 60, 61 or 62, and 80 or 81.

For business or general culture, or as a foundation for work in botany, zoölogy, geology, mineralogy, or physics, at least 2, 3, and 61 should be studied; for medicine, 2, 3, and 51.

Students majoring in chemistry should have completed ten hours of physics, mathematics through calculus, and elementary courses in German, French, bacteriology, and geology.

The department will gladly confer with students majoring in chemistry and advise them as to choice of courses best adapted to individual needs.

FEES will be charged in the various courses to cover cost of materials, breakage, etc.

1.—GENERAL CHEMISTRY. Five hours credit. First semester. Lectures and recitations, M. W. F., at 10:30 or 1:30; laboratory work, Tu. Th., from 10:30 to 12:20 or from 1:30 to 3:20. Second semester; lectures and recitations, M. W. F., at 10:30 or 11:30; laboratory work, Tu. Th., from 10:30 to 12:20, or from 1:30 to 3:20. This course is designed for students who wish to get a general knowledge of the subject, but who do not wish to devote more than five hours to chemistry. It should not be taken by students who are proposing to go on with the subject. No one is admitted to the course who presents chemistry for entrance.

Stratton and assistants.

2.—INORGANIC CHEMISTRY. Five hours credit for students presenting high-school chemistry for entrance; six hours for students who have had no chemistry. Lectures and recitations, M. W. F., at 8:20 or 9:20. For the six-hour credit there will be an additional recitation at 3:20 Thursday, or 9:30 Saturday. Laboratory work, Tu. Th., 8:30 to 10:20 or 1:30 to 3:20.

Cady, Elsey, and assistants.

3.—INORGANIC CHEMISTRY AND QUALITATIVE ANALYSIS. Five hours credit. Second semester. Lectures and recitations, Tu. Th., 8:30 or 9:30. Laboratory, M. W. F., 8:30 to 10:20 or 1:30 to 3:20. Prerequisite, course 2.

Cady and assistants.

4.—ELEMENTARY ORGANIC AND SANITARY CHEMISTRY. Five hours credit. First semester. Lectures and recitations, M. W. F., at 11:30; laboratory work, Tu. Th., from 10:30 to 12:20. Designed for students preparing for home economics. Not a substitute for 61 or 62. Prerequisite, chemistry 1.

Stratton.

49.—QUANTITATIVE ANALYSIS. Two, three, or five hours credit. Both semesters, 10:30 to 12:20 or 1:30 to 3:20. Prerequisites, courses 2 and 3.

Allen, Rowland.

51.—QUANTITATIVE ANALYSIS I. Two, three, or five hours credit. Both semesters, 10:30 to 12:20 or 1:30 to 3:20. A general course covering the fundamental principles of gravimetric and volumetric analyses. Prerequisite, course 3.

Allen, Rowland.

52.—QUANTITATIVE ANALYSIS II. Two, three, or five hours credit. Both semesters, 1 to 3, or by appointment. In connection with this work some specialty, such as cement, glass, or packing-house industry, rock analysis, paint analysis, etc., may be pursued. Prerequisite, course 51.

Allen, Rowland.

52A.—SANITARY WATER ANALYSIS. Three hours credit. Second semester, 10:30 to 12:20. Laboratory work in the sanitary analysis of water and sewage. Lectures and assigned readings on the interpretation of results and upon the methods used. Especially designed to fit students for commercial positions in this line of work. Prerequisite, course 51.

Allen.

52C.—GAS ANALYSIS. Two hours credit. First semester, by appointment. A laboratory course of general gasometric methods, analysis of flue gases, artificial, and natural gases. Prerequisite, course 51.

Allen.

52D.—FOOD ANALYSIS. Three hours credit. Both semesters, by appointment. Lectures and laboratory. Prerequisite, courses 51 and 61 or 62.

Long.

52E.—OIL ANALYSIS. Two hours credit. First semester, by appointment. The examination of petroleums and their products, lubricating oils, asphalts, and road materials. Prerequisite, course 51.

Allen.

52F.—IRON AND STEEL ANALYSIS. Two hours credit. Second semester, by appointment. Analysis of special steels and alloys. Prerequisite, course 51. Allen.

52G.—THE CHEMISTRY OF MILLING AND BAKING. Two hours credit. Second semester, by appointment. Designed to meet the requirements of chemists desiring to carry on control work in the milling industry. Prerequisites, courses 51 and 61 or 62. Long.

52H.—INDUSTRIAL ORGANIC ANALYSIS. Two hours credit. Second semester, by appointment. Including analyses of soap, paper, leather, starches, etc. Prerequisites, courses 51 and 61 or 62. Estes.

52I.—WET ASSAYING. Two hours credit. Second semester, by appointment. Volumetric methods for the estimation of copper, lead, zinc, manganese, iron, silver, gold, etc. Prerequisite, course 51. Allen.

53.—ASSAYING AND METALLURGICAL ANALYSIS. Three hours credit. Second semester, 3:30 to 5:30. The course will cover the fire assay of gold, silver, copper, and other metals. If a student has not taken course 52 he may profitably supplement the fire assaying with two hours' work on the volumetric assay of ore and furnace products. Estes.

60.—CHEMISTRY OF FOOD PRODUCTS. Five hours credit. Second semester, 3:30 to 5:20. This is intended as a general course for students who are interested in food supply, and includes a study of the source, composition, and use of foods. Attention is also given to the world's supply of foods and its manufacture and preparation for the market. Prerequisite, course 1. Bailey.

61.—ELEMENTARY ORGANIC CHEMISTRY. Five hours credit. Both semesters, 1:30 to 3:20. Designed to cover briefly the aliphatic and aromatic series, to discuss the more important derivatives, and to show their relationships and applications. Prerequisite, ten hours chemistry. Dains, Brewster.

62.—ORGANIC CHEMISTRY I. Five hours credit. First semester. Recitations, M. W. F., at 9:30; laboratory, Tu. and Th. mornings or afternoons. For students who wish a more detailed knowledge of organic chemistry. In this course the aliphatic series only is discussed, the aromatic series being reserved for organic chemistry 63. Prerequisite, ten hours chemistry. Dains, Brewster.

63.—ORGANIC CHEMISTRY II. Five hours credit. Second semester. Recitations, M. W. F., at 9:30; laboratory, Tu. and Th. mornings or afternoons. Aromatic series. Prerequisite, course 62. Dains, Brewster.

70.—PHYSICAL CHEMISTRY, ELECTRO-CHEMISTRY. Five hours credit. Second semester, at 10:30. A course paying special attention to electro-chemistry. Lectures, recitations, and laboratory work. Prerequisite, course 3 and satisfactory preparation in general physics and calculus. Cady, Elsey.

71.—PHYSICAL CHEMISTRY, GENERAL. Five hours credit. First semester, at 10:30. A general course in theoretical and physical chemistry. Lectures, recitations, and laboratory work. Prerequisites, courses 2, 3, 51, 61 or 62, and satisfactory preparation in general physics and calculus. Cady, Elsey.

80.—INORGANIC INDUSTRIAL CHEMISTRY. Three hours credit. Second semester, at 11:30. A study of the inorganic industries, including such topics as the manufacture of acids, alkalies and other chemicals, fertilizers, paint and pigments, glass and cement, and the purification of water. Prerequisites, courses 2 and 3. Allen.

81.—ORGANIC INDUSTRIAL CHEMISTRY. Three hours credit. First semester, at 9:30. A study of the inorganic industries, including such topics as the refining of petroleum, the distillation of wood and coal,

packing houses, fermentation, soaps, leather, paper, starches, sugars, dyestuffs, etc. Prerequisites, courses 2, 3 and 61 or 62. Allen.

90.—METALLURGY I. Three hours credit. First semester, at 11:30. General metallurgy, the metallurgy of iron and steel. Prerequisite, course 3. Rowland.

91.—METALLURGY II. Three hours credit. Second semester, at 9:30. The metallurgy of lead, zinc, and copper, followed by that of silver, gold, mercury, and tin. Prerequisite, course 3. Rowland.

92.—METALLURGICAL LABORATORY. Two hours credit. First semester, by appointment. This course includes high-temperatures measurements, calorimetry, preparation of silicates and alloys, study of roasting, reduction, oxidation, amalgamation, chlorination, cyaniding, and leaching. Prerequisite, course 90 or 91. Estes.

93.—GENERAL METALLURGY. Two hours credit. First semester, at 11:30. Physical properties of metals and alloys, thermal analysis, pyrometry, refractories, slags, matte, bullion, typical metallurgical processes. Estes.

DESIGN.

Professors: GRIFFITH, HEKKING.

Assistant Professor: FRAZIER.

Instructor: BENSON.

EQUIPMENT. The department of design occupies six top-lighted studios on the third floor of the new Administration Building. They are well equipped with casts from the antique, books and plates upon the theory and history of ornamental design, printing presses, a potter's wheel, and easels. The classical museum and the museum of natural history offer an abundance of material for the use of students in design. A model poses for the life classes and the University campus offers an ideal sketching ground for the landscape painting classes.

ADVICE AS TO CHOICE OF COURSES. Technical students to whom some drawing is essential are advised to take course 1. Students wishing training in artistic perception and graphic expression for its general culture value should take course 1, followed by 2, or course 52.

1.—FREE-HAND DRAWING. Three hours credit. Both semesters, 10:30 to 12:30 or 1:30 to 3:30. Drawing with pencil and charcoal from the cast and objects of still life, including the principles of perspective and geometrical problems of mechanical drawing, which aims to teach the student to construct form in a simple and correct manner.

Griffith, Frazier.

2.—DESIGN I. Three hours credit. Both semesters, 8:30 to 10:30. The anatomy of pattern and the planning of ornament. Prerequisite, course 1. Benson.

51.—FREE-HAND DRAWING. Three hours credit. A continuation of course 1, for students doing more advanced work. Prerequisite, course 1. Both semesters, 2 to 4. Griffith, Frazier.

52.—HISTORY OF PAINTING. Two hours credit. First semester, at 11:30. A lecture course presenting a survey of the whole field of painting, with the object of attaining the critical knowledge necessary to understand and enjoy a work of art. Griffith, Hekking.

53.—HISTORY OF AMERICAN PAINTING. Two hours credit. Second semester, at 11:30. Griffith.

55.—DESIGN II. Three hours credit. Both semesters, at 10:30. The application of design. Prerequisite, course 2. Benson.

56.—APPLIED DESIGN I. One hour credit. One semester, five hours per week, by appointment. Must be preceded by courses 1 and 55. Benson.

57.—APPLIED DESIGN II. One hour credit. One semester, five hours per week, by appointment. A continuation of course 56. Benson.

58.—HISTORY OF DESIGN. Two hours credit. First semester, at 10:30. A lecture course upon the history of ornament. Griffith.

ECONOMICS AND COMMERCE.

Professor: BOYNTON (Chairman of Department).

Associate Professors: DUFFUS, ISE.

Assistant Professors: FERGUSON, JENSEN, NEWMAN.

EQUIPMENT. Instruction in this department is conducted chiefly by lectures, and reading and investigation in the library, aided in the elementary courses by textbooks. The University library contains about 3,500 volumes relating to the courses of instruction, and a fair collection of special reports and documents for research work. All of the principal economic journals are on file in the reading rooms. In addition, there are charts, maps, and outlines. A limited amount of investigation of social and economic conditions is carried on.

ADVICE AS TO COURSES. Economics 1 is an essential foundation for and a prerequisite to all other courses in economics and commerce. Economics 2 and 3 lay a foundation for nearly all of the advanced courses and should be taken by all who expect to elect more than a few units in the department.

REQUIREMENTS FOR A MAJOR. The Elements of Economics (1 or 90), and the Economic and Financial History of the United States (3), *are prescribed for all major students.* Major students wishing a general course, or planning to take a graduate course, are advised, in fulfilling the requirements for graduation, to elect from the following fundamental courses: Money (50), Banking (51), History and Organization of Transportation (55), Railway Rates and Regulation (56), Business Finance (57), Public Finance (61 and 62), Statistics (68), Labor Problems (70), Economics of Agriculture (80), History of Economic Thought (91), and Distribution of Wealth (92). Those who wish to make special preparation for some vocation should elect studies in addition to those required of all major students in accordance with the suggestions made below.

SUGGESTED SPECIAL GROUPS. By a judicious combination of courses in the department of economics and commerce, and other departments of the College and the technical schools of the University, those wishing to make special preparation for some vocation can secure the more important courses given in the separate schools of commerce of other institutions. Such students should elect courses more liberally in the department than those who wish only a general major, or plan to take a graduate course. They should, also, early in their College course, consult with the faculty of the department with reference to the election of work in other departments. Upon graduation, those who complete not less than 35 hours, including all italicized subjects in one of the special groups numbered II, III, IV, V, and VI, provided they display good ability and in other respects merit high commendation, receive a special certificate from the department.

I. *Training for Commercial Teaching.* In completing their major requirements those wishing to prepare for teaching commercial subjects in high schools should take Industrial and Commercial Geography (4), Business Organization and Management (54), Business Law (69), Money (50), Banking (51), Business Finance (57), and Accounting (64 and 65). Teachers of commercial subjects are expected to know stenography and typewriting. These are not taught in the College, but a knowledge of them should be acquired.

II. *General Business Training.* Those who wish a general business

course should take *Business Organization and Management* (54), *Money* (50), *Banking* (51), *Business Finance* (57), *Labor Problems* (70), *Insurance* (60), *Business Law* (69), and *Accounting* (64 and 65). They should also elect *Advertising* (*Journalism* 55 and 56), and in meeting their group requirements, should elect *Psychology*, *Logic*, and more than one course in English composition.

III. *Training for Banking.* Those who plan to prepare for banking should take *Money* (50), *Banking* (51), *Banking Practice* (52), *Investments* (53), *Business Finance* (57), *Business Law* (69), and *Accounting* (64 and 65).

IV. *Training for Railway Administration.* Those who expect to enter the field of railway transportation should take *Business Organization and Management* (54), *History of Transportation* (55), *Railway Rates* (56), *Business Finance* (57), *Statistics* (68), *Business Law* (69), *Markets and Marketing* (81), and *Accounting* (64, 65 and 66); they are advised to elect courses in civil or mechanical engineering, also.

V. *Training for Commerce.* Those who expect to engage in mercantile pursuits should take *Industrial and Commercial Geography* (4), *Markets and Marketing* (81), *Money* (50), *Railway Rates* (56), *Business Law* (69), *Business Organization and Management* (54), *Business Finance* (57), and *Accounting* (64 and 65). They are advised to elect *Advertising* (*Journalism* 55 and 56) and *Psychology* 1.

VI. *Training for Accounting.* Those who expect to enter the practice of accounting should take *Accounting* (64, 65, 66 and 67), *Statistics* (68), *Business Organization and Management* (54), *Business Finance* (57), and *Business Law* (69).

VII. *Training for Public Service.* Those preparing for public service should take *Statistics* (68), *Public Finance* (61 and 62), *Labor Problems* (70), *Public Utilities* (59), and *Business Finance* (57). They should elect liberally in *Sociology* and *Political Science*.

VIII. *Training for Social Service.* Those who plan to engage in some branch of social service should take *Statistics* (68), *Labor Problems* (70), *Labor Legislation* (71), *Immigration* (72), and *Advanced Principles of Economics* (92), and should elect several courses in *Sociology* and *Political Science*.

IX. *Economics as Preliminary to the Study of Law.* Many of the courses in *Economics* and *Commerce* will be found to be valuable in preparing for the study of law. Major students who expect to enter the legal profession should take *Business Finance* (57), *Public Utilities* (59), *Public Finance* (61 and 62), *Money* (50), *Banking* (51), *Investments* (53), and *Labor Problems* (70).

1.—ELEMENTS OF ECONOMICS. Five hours credit. Both semesters, at 8, 9, 10, 11, 1, and 2. This course is essentially a concrete analytical study of the laws governing man in his relation to wealth. It not only furnishes the basis for the scientific understanding of economic affairs, but serves as the foundation for all other courses in economics. Not open to Juniors and Seniors. (See 90.)

Duffus, Ise, Ferguson, Jensen, Newman.

2.—ECONOMIC HISTORY OF ENGLAND. Three hours credit. First semester, at 9. A study of the general development of agriculture, industry, and commerce in England from the tenth century to the present time. The course is designed to show the gradual evolution of an industrial society and to trace those changes by which modern England has attained her present economic position. Prerequisite, course 1.

Boynton.

3.—ECONOMIC AND FINANCIAL HISTORY OF THE UNITED STATES. Three hours credit. Second semester, at 9. Attention is given to colonial agriculture, industry, and trade as an introduction to the course. After

1789, the main lines of study are the banking, transportation, and tariff history of the United States, with special attention to the development of the natural resources, the rise of manufactures and the expansion of corporate methods in industry and trade. Prerequisite, course 1. Boynton.

4.—INDUSTRIAL AND COMMERCIAL GEOGRAPHY. Three hours credit. Second semester, at 10. The purpose of this course is to acquaint the student with the more important economic aspects of the principal industries of the world. The course is primarily a concrete, descriptive study of the geographical division of labor and the differences in natural resources, labor conditions, available capital, and business enterprise which largely determine this division. The chief products of the different countries and international trade in them are studied. Newman.

5.—EUROPEAN INDUSTRY AND COMMERCE DURING THE NINETEENTH CENTURY I. Two hours credit. First semester, at 9. Agrarian, industrial and commercial development of Europe in the nineteenth century. The agrarian movement and depression, the industrial revolution, the development of commerce and shipping, a brief consideration of shipping subsidies, industrial combinations and state policies regarding them, and tariff policies of the chief European countries. Prerequisite, course 1. Newman.

6.—EUROPEAN INDUSTRY AND COMMERCE DURING THE NINETEENTH CENTURY II. Two hours credit. Second semester, at 9. A continuation of course 5, which must have been completed. Newman.

10.—THE ECONOMICS OF THE WAR. Three hours credit. Second semester, at 9. The course is intended to treat in particular the economic problems involved in and growing out of the war. Attention will be directed to the war-time regulation of trade and industry, the control of supplies and of transportation, and in particular to the subject of war finance. The course will conclude with a study of the problems incident to demobilization and of the various programs of reconstruction. Prerequisite, course 1. Boynton.

50.—MONEY. Three hours credit. First semester, at 10. The evolution of coinage and of monetary systems; the production, distribution and functions of the precious metals; value theories of money, issues of paper money by governments and by banks; credit and its relation to money; domestic and foreign exchange; prices and their fluctuations constitute the main features of the course. The historical background, where possible, is emphasized. Prerequisite, course 1. Boynton.

51.—BANKING. Three hours credit. Second semester, at 10. The principles of banking are studied, special attention being given to the relation of banking to credit operations. A comparative study is made of the banking systems of the United States, Great Britain, France, Germany, and Canada, including their historical development. Special consideration is given to the Federal Reserve System of the United States. Prerequisite, course 50. Boynton.

52.—BANKING PRACTICE. Two hours credit. First semester, at 10. A study of the organization and operation of commercial banks, savings banks, trust companies, and investment banking, including the function of commercial paper houses and note brokers. The nature of banking and mercantile credit is analyzed as well as the broader relation of banking to the money market. Prerequisite, course 51. Boynton.

53.—INVESTMENTS. Two hours credit. Second semester, at 10. A study of the various fields of investments, including railway, mining, and industrial securities, and the bonds of governments and municipalities, with special attention to the merits of particular stocks, bonds, mortgages, etc. The work of investment banking houses will likewise be considered. The aim of the course is to determine, so far as possible,

the elements of a wise and conservative investment. Prerequisite, course 1. Boynton.

54.—BUSINESS ORGANIZATION AND MANAGEMENT. Three hours credit. Second semester, at 1. This course treats of general business organization and management, as well as the organization of the business of the bank, the factory, and the general office. The organization and working of the industrial and commercial corporation are given special consideration. Prerequisite, course 1. Ferguson.

55.—HISTORY AND ORGANIZATION OF TRANSPORTATION. Two hours credit. First semester, at 11. Canal construction and the development of the railway net of the United States; railroad finance and organization; problems of railway maintenance and methods of conducting transportation; accounts and reports illustrating railway operations; a comparative study of railway practices in other countries. Prerequisite, course 1. Should be preceded by course 3. Boynton.

56.—RAILWAY RATES AND REGULATION. Two hours credit. Second semester, at 11. A study of the theory of railway rates, and of rate-making in practice; problems of local and personal discrimination; adjustments due to geographical location and market competition; railway agreements; state railway commissions and the Interstate Commerce Commission; recent legislation, state and national, relating to railway transportation. Prerequisite, course 55. Boynton.

57.—BUSINESS FINANCE. Three hours credit. First semester, at 9. A general course dealing mainly with the financial side of large corporations, and concluding with a study of the economic causes and consequences of the combination movement in industry. The leading topics treated are: internal organization, promotion, capitalization, financing, and reorganization of corporations; and the origin, development and legal status of trusts. Consideration is given throughout to interrelated corporation and trust problems. Prerequisite, course 1. Ferguson.

59.—PUBLIC UTILITIES. Two hours credit. Second semester, at 9. The topics studied are: problems of water, lighting, heating, and telephone service; street and interurban railway transportation; public ownership versus regulated private ownership; the determination of reasonable rates and adequate service; public utility reports and accounts. Prerequisite, course 1. Should be preceded or accompanied by courses 56 and 57. Newman.

60.—INSURANCE. Three hours credit. Second semester, at 8. A study of (a) the general economic nature of risk and the theory of insurance; (b) the organized business of fire and life insurance, including details with respect to policy contracts, fire insurance rating, the calculation of insurance premiums, reserves, investment of funds, etc.; and (c) the relation of the state to insurance. Students desiring to do so will be permitted to devote part of their time to forms of insurance other than fire and life. Prerequisite, course 1. Duffus.

61.—PUBLIC FINANCE I. Three hours credit. First semester, at 8. A general introduction to the science of public finance, public expenditures, fiscal administration, public revenues and public credit; special emphasis upon shifting and incidence of taxation. Prerequisite, course 1. Jensen.

62.—PUBLIC FINANCE II. Three hours credit. Second semester, at 8. Analysis and description of current taxation systems, national, state, and local. Discussion of existing general property, land value, income, inheritance, and other forms of taxes. Taxation problems, programs, and reforms. Prerequisite, course 61. Jensen.

64.—ACCOUNTING I. Three hours credit. First semester, at 2. Theory and practice of modern accounting, applicable to the single proprietorship and partnership form of business. Prerequisite, course 1. Ferguson.

65.—ACCOUNTING II. Three hours credit. Second semester, at 2. Prerequisite, course 64. Review and further development of Accounting I. Special problems in connection with partnerships, interest, and depreciation. Corporation accounts, stock issues, dividends, sinking funds, and reserves. Ferguson.

66.—COST ACCOUNTING. Two hours credit. First semester, at 2. Prerequisite, courses 64 and 65. The elements of cost. Cost records an integral part of the general accounting system. The control of material. Different wage systems. The allocation of expenditures to various units of production in different lines of industry.

67.—ADVANCED ACCOUNTING AND AUDITING. Two hours credit. Second semester, at 2. Prerequisite, courses 64 and 65. C. P. A. problems. Duties and responsibilities of the auditor. General procedure and method. Balance sheet audit, detailed audit, verification of assets and liabilities.

68.—STATISTICS. Three hours credit. Second semester, at 9. Statistics as the characteristic method of investigation in the social sciences. The principles governing the collection, preparation, and interpretation of statistical data, including tabulation and graphic presentation. Prerequisite, course 1. Jensen.

69.—BUSINESS LAW. Three hours credit. Second semester, at 11. The elementary principles of law relating to business transactions. The essentials of contracts, agency, bailments, sales, negotiable instruments, corporations and real property. Emphasis is laid upon the legal problems which arise in everyday business. Prerequisite, course 1. Ferguson.

70.—LABOR PROBLEMS. Two hours credit. First semester, at 8. The nature, genesis and development of modern labor problems, the history, growth, policies, and practices of trade unions, with special reference to the United States, and policies of employment management, as developed by employers. Prerequisite, course 1. Duffus.

71.—LABOR LEGISLATION. Two hours credit. Second semester, at 8. A continuation of course 70. Among the topics studied are: compulsory arbitration, hours of labor, the minimum wage, workmen's compensation acts, safety legislation, health insurance, old-age pensions, unemployment and its remedies, and the labor of women and children. Prerequisite, course 70 or its equivalent. Duffus.

72.—IMMIGRATION PROBLEMS. Two hours credit. Second semester, at 10. The course is concerned with the history of immigration to the United States, its causes, character, geographical distribution, economic effects of immigration, pauperism, and the problem of assimilation. The special problems of oriental immigration and the question of immigration policy will also be studied. Prerequisite, course 1.

73.—MODERN ECONOMIC REFORM. Three hours credit. Second semester, at 10. This course will treat of modern movements for economic reform, including the single tax, agrarian reform, coöperation, profit-sharing, syndicalism, socialism, and communism, with a critical discussion of present and proposed methods of distribution and economic organization. Prerequisite, course 1. Ise.

80.—ECONOMICS OF AGRICULTURE. Three hours credit. Second semester, at 1. The principal topics studied are: private property in land; the public-land policy of the United States and its economic consequences; organization of the productive factors; size of farms, land values, and tenancy; rural credit; marketing; coöperative organization among farmers. Special attention is given to conditions in Kansas. Prerequisite, course 1. Ise.

81.—MARKETS AND MARKETING. Three hours credit. First semester, at 11. Summarized history of marketing organization; principal types of present-day markets and marketing agencies; the functions of the

middleman in the distribution of the products of farm and factory; organized speculation in farm products; the organization of domestic and foreign trade; various proposals for improving marketing methods. Prerequisite, course 1. Ise.

90.—ELEMENTS OF ECONOMICS. Three hours credit. Second semester, at 1. The same as course 1, except that it is designed especially to meet the needs of Juniors and Seniors. Ise.

91.—HISTORY OF ECONOMIC THOUGHT. Two hours credit. First semester, at 9. The history of economic doctrines in ancient, mediæval and modern times. A study of the doctrines of the Greeks, Romans, schoolmen and canonists, mercantilists, physiocrats, and of the later classical, mathematical, Austrian, and historical schools. Prerequisite, course 1 or 90. Ise.

92.—ADVANCED PRINCIPLES OF ECONOMICS. Three hours credit. Second semester, at 9. This course is designed to give mature students of economics a firm grasp of the more important economic principles. The theories of value and prices and of distribution are studied in the light of current schools of thought. Prerequisite, course 1 or 90. Ise.

EDUCATION.

The following courses in the School of Education are open to College students who do not elect courses from other professional schools, but not more than fifteen hours and a course in senior teaching may be counted towards the degree of bachelor of arts. Students desiring admission to any of these courses must register in the School of Education as well as the College, and will be admitted to the classes as students of the School of Education.

Courses in education, of which detailed descriptions will be found in Section IX, are arranged in the following five groups.

Historical group: numbers 50, 51, 59, 60, and 63.

Theoretical group: numbers 1, 54, 55, 64, 65, 67, 68, 69, 71, 75, 76, 78, and 79.

Administrative group: numbers 2, 52, 53, 56, 57, 58, 61, 62, 66, 70, 72, 73, 74, and 77.

Teachers' Courses: numbers 80, 81, 83, 84, 85, 86, 87, 88, 89, 90, 91, 95, 96, 97, and 99.

Senior Teaching: numbers 80*a*, 81*a*, 83*a*, 84*a*, 85*a*, 86*a*, 87*a*, 88*a*, 89*a*, 90*a*, 91*a*, 95*a*, 96*a*, 97*a*, and 99*a*.

ENGINEERING.

The following courses in the School of Engineering are open to College students who do not elect courses from other professional schools, but not more than fifteen hours may be counted towards the degree of bachelor of arts. Students desiring admission to any of these courses must register in the School of Engineering as well as in the College, and will be admitted to the classes as engineering students:

C. E. 1.—SURVEYING. Three hours credit. First semester, Tu, Th., at 10 to 11, with field work at 1 to 4. Prerequisite, plane trigonometry.

C. E. 2.—SURVEYING. Three hours credit. Second semester. A continuation of the preceding course.

ENG. DR. 3.—DESCRIPTIVE GEOMETRY. Three hours credit. Both semesters.

C. E. 52.—CITY PLANNING. Two hours credit. Second semester.

C. E. 70.—SANITARY ENGINEERING I. Three hours credit. First semester.

C. E. 71.—SANITARY ENGINEERING II. Four hours credit. Second semester.

C. E. 73.—SANITARY SCIENCE AND PUBLIC HEALTH. Two hours credit. First semester.

C. E. 75.—ROADS AND PAVEMENTS. Two hours credit. Second semester.

E. E. 50.—DYNAMO MACHINERY. Three hours credit. First semester.

E. E. 51.—THEORY OF ALTERNATING CURRENTS. Five hours credit. Second semester.

M. E. 51.—THERMODYNAMICS. Three hours credit. First semester.

IND. ENG. 51.—INDUSTRIAL ENGINEERING II. Three hours credit. First semester.

IND. ENG. 52.—INDUSTRIAL ADMINISTRATION. Three hours credit. Second semester.

MECH 50.—MECHANICS. Five hours credit. Both semesters.

MECH. 51.—STRENGTH OF MATERIALS. Five hours credit. Both semesters.

MECH. 55.—HYDRAULICS. Three hours credit. Both semesters.

A. E. 5.—HISTORY OF ARCHITECTURE I. Three hours credit. First semester.

A. E. 6.—HISTORY OF ARCHITECTURE II. Three hours credit. Second semester.

MIN. E. 53.—ORE DRESSING. Three hours credit. Both semesters.

MIN. E. 68.—ELEMENTS OF MINING. Three hours credit. Both semesters.

ENGLISH LANGUAGE AND LITERATURE.

Professors: DUNLAP (Head of Department), HOPKINS,*

O'LEARY, WHITCOMB,* SISSON.

Associate Professors: JOHNSON, LYNN, RAYMOND.†

Assistant Professors: GARDNER,** BURNHAM, MORGAN, WINSTON.

Instructors: LAIRD, HOOPES, WATTLES,† SWENSON,

WILSON,† BARNES, SPANGLER.

Assistant Instructors: HULL, FOSTER, WHEELER, PRINGLE.

EQUIPMENT. Apart from a number of portraits and historical maps, the equipment for this department is the University library, in which are collections of volumes and periodicals relating especially to rhetoric and composition, to English literature, and to the English language. There are complete sets of journals, such as *Anglia* and *Englische Studien*, and the publications of the Early English Text Society, the Chaucer Society, the English and American Dialect Societies, the Spenser Society, the Shakspeare Society, the New Shakspeare Society, the Shelley Society, the Browning Society, and others. The library also possesses the Shakspeare Jahrbuch, and facsimiles of the quartos and folios of Shakspeare. The total number of volumes pertaining to the subjects in this department is 14,284. Of these 1,299 are devoted to Shakspeare, 8,755 to other English literature, 804 to English philology, and 3,426 to American literature.

Prerequisites: Courses 1, 2, 10, and 11, or their equivalents, must be completed before the student can be admitted to any other course in the department; and courses 12-14 or 13-15, scheduled for the Sophomore year, or their equivalent, are, in the case of all students whose major is English, prerequisite to all succeeding courses in English literature. In special cases, Juniors or Seniors may be allowed, with the consent of the department, to take an advanced course in connection with 12, 13, 14, or 15.

* Absent on leave, second semester, 1919-'20. ** Absent on leave, 1919-'20. † Assigned to School of Engineering.

RHETORIC AND COMPOSITION.

1.—RHETORIC I.** Three hours credit. First semester, at 8:30, 9:30, 10:30, 11:30, 1:30, 2:30, 3:30. Written exercises, with study of rhetorical theory. Required of all Freshmen in the College not offering for entrance a fourth unit in English composition. Gardner and assistants.

2.—RHETORIC II.** Two hours credit. Second semester, at 8:30, 9:30, 10:30, 11:30, 1:30, 2:30, 3:30. A continuation of course 1. Required of all Freshmen in the College not offering for entrance a fourth unit in English composition. Gardner and assistants.

Credit for courses 1 and 2 is given provisionally and will be withdrawn for subsequent use of notably bad English.

3.—THE PRINCIPLES OF ARGUMENTATION * Three hours credit. First semester, at 11:30. The general principles of logic as applied in discourse, with briefs and exercises. Hopkins, Laird.

50.—NARRATION AND DESCRIPTION. Three hours credit. First semester, at 8:30, 9:30, 10:30. A study of general principles, with exercises. A fundamental course, recommended as preparation for English 55 to 58, inclusive. O'Leary, Lynn.

51.—NARRATION AND DESCRIPTION. Two hours credit. Second semester, at 8:30 and 9:30. Prerequisite, course 50. O'Leary, Lynn.

52.—EXPOSITION. Two hours credit. First semester, at 9:30. A study of general principles, with outlines and exercises. A fundamental course recommended as preparation for English 55 to 58, inclusive. Gardner.

53.—ADVANCED ARGUMENT. Three hours credit. Second semester, at 2:30. Prerequisite, course 3. Hopkins.

55.—LITERARY CRITICISM. Two hours credit. First semester, at 1:30. A study of the principles and methods of criticism through its literature, with practice in book reviewing and in critical writing. Hopkins.

56.—VERSIFICATION. One hour credit. First semester, Monday, at 3:30. A study of the forms and principles of English verse, with exercises. Hopkins.

57.—ESSAY WRITING. Two hours credit. Second semester, at 10:30. A study of general principles, with exercises. O'Leary.

58.—PROSE INVENTION. Two hours credit. Second semester, at 1:30. A general survey of theories of literary art, with practice in original production. Library and conference course, with required thesis. Prerequisites, one or more advanced courses in English composition. Hopkins.

LANGUAGE.

60.—ELEMENTARY OLD ENGLISH. Three hours credit. First semester, at 3:30. Old English grammar, with reading of West Saxon prose texts. Burnham.

61.—BEOWULF. Two hours credit. First semester, by appointment. Prerequisite, courses 60 and 64. Burnham.

62.—MIDDLE ENGLISH. Two hours credit. First semester, at 3:30. Language and literature of the fourteenth century, exclusive of Chaucer. Prerequisite, course 60. Burnham.

63.—MIDDLE ENGLISH. Three hours credit. Second semester, at 8:30. Reading of Middle English texts, with study of the development of the English language, its sounds, inflections, and syntax. Prerequisite, course 60. Burnham.

64.—ADVANCED OLD ENGLISH. Two hours credit. Second semester, by appointment. Prerequisite, course 60. Burnham.

68.—MODERN ENGLISH GRAMMAR. Two hours credit. First semester, at 2:30. A course chiefly practical, for intending teachers. Burnham.

70.—ENGLISH USAGE. Two hours credit. Second semester, at 2:30. Consideration of the principles governing usage, and of specific problems in contemporary English. Burnham.

LITERATURE.

10.—ENGLISH LITERATURE. Two hours credit. First semester, at 8:30, 9:30, 10:30, 11:30, 1:30, 2:30. A study of representative authors. Prerequisite for all other courses in the department above 11, except in the case of students who offer for entrance a fourth unit in English literature. Johnson and assistants.

11.—ENGLISH LITERATURE. Three hours credit. Second semester, 8:30, 9:30, 10:30, 11:30, 1:30, 2:30. A study of representative authors. Prerequisite for all later courses in the department, except in the case of students who offer for entrance a fourth unit in English literature. Johnson and assistants.

12 and 13.—HISTORY OF ENGLISH LITERATURE.* 12, three hours credit; 13, two hours credit. The two courses begin at the same point. First semester, at 8:30, 9:30, 10:30, 11:30. Prerequisite, English 1, 2, 10, and 11. Lynn and assistants.

14 and 15.—HISTORY OF ENGLISH LITERATURE.* 14, two hours credit; 15, three hours credit. Second semester, at 8:30, 9:30, 10:30, 11:30. Prerequisites, English 1, 2, 10, and 11. Course 14 is a continuation of course 12, and course 15 of course 13. Lynn and assistants.

71.—AMERICAN LITERATURE I. Three hours credit. First semester, at 1:30. General history, with special reference to the work of the chief American poets. Hopkins.

72.—AMERICAN LITERATURE II. Three hours credit. Second semester, at 1:30. A study of later writers and of current literature, with special reference to fiction. Hopkins.

73.—ENGLISH LITERATURE OF THE EIGHTEENTH CENTURY. Two hours credit. First semester, at 9:30. The period covered is that from 1660 to approximately 1735. O'Leary.

74.—ENGLISH LITERATURE OF THE EIGHTEENTH CENTURY. Three hours credit. Second semester, at 9:30. Covers the period from approximately 1735 to 1798. O'Leary.

75.—VICTORIAN LITERATURE. Exclusive of the novel and Tennyson and Browning. Two hours credit. First semester, at 10:30. Dunlap.

76.—ENGLISH LITERATURE OF THE NINETEENTH CENTURY. Three hours credit. First semester, at 11:30. Prose, exclusive of the novel. The authors studied are Lamb, De Quincey, Hazlitt, Newman, Landor, Ruskin, and Stevenson. Dunlap.

77.—ENGLISH LITERATURE OF THE NINETEENTH CENTURY. Three hours credit. Second semester, at 9:30. Poetry. The authors studied are Wordsworth, Coleridge, Southey, Byron, Arnold, Tennyson, and Brown-ing. Dunlap.

78.—SHAKSPERE. Three hours credit. Both semesters, at 10:30. Interpretation of three plays. Dunlap.

79.—CHAUCER. Three hours credit. First semester, at 9:30. Neither Old or Middle English required for entrance. Careful reading of the Prologue, Knightes Tale, and the Nonne Preestes Tale; rapid reading of a large part of the Canterbury Tales. Dunlap.

80.—SHELLEY AND KEATS. Two hours credit. Second semester, at 11:30. Lectures, and interpretation of selected poems. Dunlap.

81.—BROWNING AND TENNYSON. Two hours credit. Second semester, at 10:30. Interpretative study of selected poems, with general view of the work of both authors. Lynn.

82.—CARLYLE AND EMERSON. Two hours credit. Second semester, at 8:30. The characteristics of each man's work and its relation to nineteenth century thought. Lectures and class reports. (Given in 1922 and each alternate year following.) Johnson.

83.—MILTON AND HIS CONTEMPORARIES. Two hours credit. Second semester, at 8:30. The poetry and prose of Milton with supplementary study of representative contemporary authors. (Given in 1921 and each alternate year following.) Johnson.

84.—THE MODERN ENGLISH LYRIC. Two hours credit. First semester, at 3:30. A representative body of English lyrics will be studied in the classroom, with attention to the general criticism of lyric poetry. Whitcomb.

85.—TECHNIC AND THEORY OF THE DRAMA. Two hours credit. First semester, at 2:30. Study of dramatic dialogue, diction, characterization, and stage presentation. Lectures and weekly exercises in criticism or composition. Whitcomb.

86.—HISTORY OF THE ENGLISH DRAMA. Three hours credit. First semester, at 8:30. From the early liturgical plays to 1642. Study of origins and influences; the growth of types; stage history; and reading and criticism of about thirty plays. Lectures and written reports. Johnson.

87.—HISTORY OF THE ENGLISH DRAMA. Three hours credit. Second semester, at 2:30. English dramatic history from 1642 to the present time, with special attention given to Victorian and post-Victorian drama. Whitcomb.

88.—THE ENGLISH NOVEL. Three hours credit. Second semester, at 11:30. A historical and critical survey of the English novel, from Defoe to Meredith. Lectures on the growth and development of the novel. Study of selected typical novels, illustrative of important phases of fiction. Dunlap.

89.—THE ENGLISH ESSAY. Two hours credit. Second semester, at 9:30. A study, historical and critical, of the essay as a literary form, from Bacon to the present time. O'Leary.

91.—BIOGRAPHY AND AUTOBIOGRAPHY. Two hours credit. First semester, at 1:30. A study of the values and problems of the individual life, as suggested by the detailed records of significant lives. Whitcomb.

ENTOMOLOGY.

Professor: HUNTER (Head of Department).

Associate Professor: HUNGERFORD.

Instructor: LAWSON.

Assistant Instructor: BATCHMAN.

EQUIPMENT. The arrangement of the laboratories is such as to provide for (1) general instruction; (2) research work in serial-breeding experiments and conditions governing development. Special thermal regulators for determination of influence of temperature on development are used in these researches. A feature of great value is the recent completion of the cross-reference card index to the current entomological literature. An insectary with greenhouse adjoining has, in addition to regular insectary equipment, special facilities for the study of aquatic life. The extensive collections, both biologic and systematic, offer exceptional facilities for comprehensive instruction in the various groups. A more extended notice of these collections will be found under the head of Museums. A large series of cabinets has been especially arranged to aid in teaching. These are supplemented by models illustrating developmental processes.

ADVICE AS TO CHOICE OF COURSES. The courses in entomology are designed to meet the needs of three classes of students: (1) The general

student who desires a fuller knowledge and appreciation of the biological problems illustrated by insect life; (2) the student who is preparing to teach botany, zoölogy or general biology in the high school; (3) and the special student who is preparing to become a teacher or investigator. For the first class, courses 1, 2, 3, and 53 are recommended; for the second class, in addition to these, courses 51, 58, and 60. For the third class, after the completion of the four fundamental courses, the aims of each student will largely determine the selection of advanced courses. Students majoring in the department are recommended to take after course 58, protozoölogy 71. The advice of the department is that such selection shall be made only after consultation.

1.—INTRODUCTORY ENTOMOLOGY I. Five hours credit. Both semesters, two sections, 9:30 to 10:30, M. W. F., 8:30 to 10:30, Tu. Th., and 10:30 to 11:30, M. W. F., 10:30 to 12:30, Tu. Th. A general course in life and behavior of insects and other arthropods, and their relations to plants and other animals. A field, laboratory and lecture course with recitations designed for the field, laboratory and lecture course with recitations designed for the general student. Fee, \$1.

Hungerford, Lawson and assistants.

2.—INTRODUCTORY ENTOMOLOGY II. Five hours credit. Second semester, 9:30 to 10:30, M. W. F.; 8:30 to 10:30, Tu. Th. This course is a continuation of entomology I, and during the present period special emphasis will be given to those forms and problems which have a direct bearing on food conservation. Prerequisite, course 1. Hungerford.

3.—MORPHOLOGY OF INSECTS I.* Three hours credit. First semester, 10:30 to 12:30. A course presenting the more general features of the form and structure of a few representative insects. Laboratory study, lectures, and assigned readings. Prerequisite, course 1 or equivalent. Fee, \$1.50. Lawson.

50.—INTRODUCTORY ENTOMOLOGY Five hours credit. First semester at 1:30 to 2:30, M. W. F.; 1:30 to 3:30, Tu. Th. A general course in life and behavior of insects and other arthropods, and their relations to plants and other animals. A field, laboratory, and lecture course with recitations. Not open to students who have had course 1. Fee, \$1.

Hungerford.

51.—MORPHOLOGY OF INSECTS II. Three hours credit. Second semester, 10:30 to 12:30. A study of the internal structure and development of a few representative types of insects, and their bearing upon physiological processes of life. Prerequisites, entomology 1 and 2, or equivalent. Fee, \$1.50. Lawson.

52.—SYSTEMATIC ENTOMOLOGY. Two hours credit. Both semesters, 1:30 to 3:30. This course gives special prominence to the systematic position of the orders studied. The laboratory work consists of the classification of insects, and is accompanied by studies in the life history of the various forms identified. Prerequisite, Entomology 1, 2, and 3, or equivalent. Fee, \$1. Lawson.

53.—BIOLOGY OF THE ARTHROPODA Two hours credit. First semester, 3:30. This course, conducted in field and laboratory, deals with ecology, adaptation to environment, mode of life, and such other general biological studies as illustrated in the lives of insects and other arthropods. Prerequisites, course 1 and 2, or equivalent. Fee, \$1. Hungerford.

54.—ADVANCED MORPHOLOGY AND HISTOLOGY OF INSECTS. Three hours credit. Both semesters, 1:30 to 3:30. Prerequisites, courses 1, 2, and 51. Fee, \$1.50. Hunter.

55.—TAXONOMY OF INSECTS. Three hours credit. Both semesters, by appointment. A continuation of course 52, enabling the student to undertake the serious study of some one family. Students qualified to take this course are afforded an opportunity to work with material secured on

the biological survey trip of the previous summer. (Special study of the Coccidæ may be elected in this course.) Prerequisite, entomology 1, 2 and 3. Fee, \$1. Lawson.

56.—APPLIED ENTOMOLOGY I. Two hours credit. First semester, at 11:30. Lectures, recitations, and observations in the field on forms of economic value; life histories, habits, and methods of combating the injurious forms, and of utilizing the beneficial. Prerequisite, course 1 and 2, or equivalent. Fee, \$1. Hungerford.

57.—APPLIED ENTOMOLOGY II. Two hours credit. Second semester, at 11:30. A continuation of course 56. This course deals especially with those insects that are intimately associated with the household, the garden, and the farmyard. Course 56, which deals with the insects of farm and orchard crops, is not a prerequisite for this course, which is nontechnical, and is intended for the general student. Hungerford.

58.—INSECTS AND PUBLIC HEALTH. Two hours credit. First semester, at 10:30. A study of the relations of insects and other arthropods to public health. A lecture, recitation, and demonstration course for the purpose of acquainting the student with those forms which are liable to transmit human diseases. Hunter.

60.—AGRICULTURE. Two hours credit. First semester, at 8:30. This course deals with insects injurious to crops. This course must be taken in combination with botany 60. Hungerford.

61.—FIELD ENTOMOLOGY AND INSECTARY METHODS. Two hours credit. 3:30 to 5:30. Second semester. This course is conducted in field and insectary, and involves a study of methods of collecting and of rearing insects. It is intended to serve two purposes; first, to give those intending to teach biology some knowledge of the handling of the material most available for their work; and second, to afford some training to those who purpose to carry on experiment-station work. Prerequisite, entomology 1 and 2, and one course in applied entomology, or its equivalent. Fee, \$1. Hungerford.

64.—SPECIAL PROBLEMS. Three to five hours. Both semesters. Open to Seniors only, who are ready to take up some special problem which may either be completed as an undergraduate study or be the beginning of a problem leading to an advanced degree. The Staff.

GEOLOGY.

Professors: HAWORTH (Head of Department), MOORE.

Associate Professor: HAYNES.

Assistant Professors: TODD, FLEENER.

GENERAL STATEMENT. The department of geology offers training in a number of divisions of earth science, which, while more or less closely related to one another, are nevertheless to a certain extent independent sciences. These may be indicated conveniently as follows: (1) General geology and geography, (2) historical geology and paleontology, (3) economic geology, and (4) mineralogy and petrology. Courses in the department may be grouped with reference to the following classes of students: (a) those wishing to acquire knowledge of the structure, composition and history of the earth, as a part of a liberal education; (b) those expecting to engage in professional work along some geologic line, (1) as a petroleum geologist, or (2) in geology applied to mining; (c) those desiring to prepare for teaching in secondary schools; and (d) those who feel the need of geologic knowledge as an aid to the interpretation of facts of other sciences or branches of learning.

ADVICE AS TO COURSES. It is desirable that every student decide, at least before his Junior year, the particular field of geology in which he

wishes to specialize. Students who desire to follow any of the lines of training previously mentioned may be guided by the following outlines:

a.—*General Geology*: 1, 2, 3, 30, 50, 51, 61, 62, 71 or 72.

b. (1).—*Petroleum Geology*: 1, 2, 3, 30, 50, 51, 61, 62, 71, 73.

b. (2).—*Mining Geology*: 1, 2, 3, 30, 31, 51, 61, 70, 71, 72, 81, 82.

c.—*Teaching in Secondary Schools*: 1, 2, 3, 30, 50, 51, 54, 55, 56, 57, 58, 59, 70.

d.—*Geology as a Minor*: 1, 2, 3. Additional courses related to the major subject.

EQUIPMENT. The department of geology is located in Haworth Hall, a three-story building with laboratories, museums, lecture rooms, and library. The laboratories contain abundant material for class work in the study of minerals, rocks, and topographic and geologic maps. A very extensive collection of minerals and rocks arranged in systematic order, and a large collection of invertebrate fossils, are exhibited in the department museum. In the class rooms are cases with topographic and geologic wall maps, and models of topographic forms, together with a reflectoscope and lantern slides and reference collections of rocks, minerals, and fossils. The library contains all the principal works on geology and mining, including their various subdivisions, sets of federal, state and foreign geologic reports, and American and foreign geologic periodicals.

PREREQUISITES. Courses in geology Nos. 2 and 3 are prerequisite for all subsequent geology courses in the College excepting 30, 31, and 70. Students wishing to specialize in mineralogy, petrology and economic geology should take as much chemistry as their courses will permit; students wishing to specialize in historical geology and paleontology should take special work in zoology. It is highly desirable that students majoring in geology should have taken elementary chemistry and physics by the close of their Junior year, or earlier if possible. Group requirements for Freshman-Sophomores may be satisfied by geology courses 1, 2 and 3, or 1 and 30.

GENERAL GEOLOGY AND GEOGRAPHY.

1.—**PHYSICAL GEOGRAPHY.** Three hours credit. Each semester, at 9 or 11, with one laboratory period per week, from 1 to 3 on Tuesday. An elementary course on the physical features of the earth, including a consideration of their origin and the agencies producing changes; the evolution of land forms. Occasional short field trips will be made. For students not offering physical geography for entrance. Fleener.

2.—**ELEMENTARY GEOLOGY.** Three hours credit. Each semester, at 8 or 10, with one laboratory period per week, from 1 to 3 on Wednesday. A study of the elements of the science, including a general outline of geologic principles and agencies. An acquaintance with elementary chemistry is very desirable in this course. Prerequisite, geology 1, for students not offering physical geography for entrance. Moore, Haynes.

3.—**INTRODUCTORY HISTORICAL GEOLOGY.** Two hours credit. Each semester, at 8 or 10. A study of the more important events in the past history of the earth, as a basis for the correct understanding of the present geography, rock structure, and natural resources of the world. This course must be accompanied or preceded by 2. Moore, Haynes.

50.—**GEOLOGIC AND TOPOGRAPHIC MAPS.** Two hours credit. First semester, at 11. A study chiefly in the laboratory, designed to give the student a thorough understanding of geologic and topographic maps and the ability to interpret them correctly, a very important part of the training of a geologist. Prerequisites, geology 2 and 3. Haynes, Fleener.

51.—GEOLOGIC PROCESSES. Three hours credit. First semester, at 11. An advanced course comprising a critical investigation of geologic agencies and the results of their work. The development of land forms and the principles of sedimentation will be studied, and the physiographic history of specific areas considered. Library and laboratory study, with special opportunity for training in the methods of geologic work. Prerequisites, geology 2 and 3, elementary physics and chemistry.

Fleener.

52.—FIELD GEOLOGY. Six hours credit. Summer Session. A five weeks' course devoted to a study of the geology and physiography of parts of Kansas and Colorado, with detailed investigation of special areas. Prerequisites, geology 2 and 3. Registration only after consultation with the instructors.

Moore, Haynes.

53.—FIELD GEOLOGY REPORT. An additional credit of three hours will be given for a satisfactory thesis based upon the work of course 52.

54.—ELEMENTS OF GEOGRAPHY. Three hours credit. Second semester, at 8. An introductory study of the earth with special reference to the relation of its physical features to life, especially to human life. The response of life to environment is investigated by study of the chief natural regions of earth. Prerequisites, geology 2 and 3.

Fleener.

55.—ELEMENTARY METEOROLOGY. Two hours credit. First semester, at 1. A brief course on the causes and effects of atmospheric conditions, such as changes of temperatures, winds, humidity, clouds, rain, and storms. An understanding of the weather and its effect on man's activities is given. Prerequisites, geology 2 and 3. (Not given in 1919-'20.)

Haynes.

56.—CLIMATES. Two hours credit. First semester, at 1. A study of the elements and control of climates, the natural climatic provinces of the world and the importance of climatic influences on man, as controlling factor in distribution of population, occupations, customs and diseases. Prerequisites, geology 2 and 3. (Not given in 1920-'21.)

Haynes.

57.—GEOGRAPHY OF NORTH AMERICA. Three hours credit. First semester, at 1. A study of the relation of the continent to the world as a whole; the physical features of the continent, its climates and the character and distribution of its natural resources; the influence of geographic conditions in the development and life of the different countries. Prerequisites, geology 2 and 3. (Not given in 1919-'20.)

Haynes, Fleener.

58.—GEOGRAPHY OF SOUTH AMERICA. Three hours credit. First semester, at 1. The physical features, climates and resources of the continent; their effects on the development and prospects of the different countries. Special consideration is given to the geographic factors involved in trade between the United States and South America. Prerequisites, geology 2 and 3. (Not given in 1920-'21.)

Haynes.

59.—GEOLOGY AND GEOGRAPHY OF KANSAS. Two hours credit. Second semester, at 11. Lectures and library work. A careful study of the geology and physical geography of Kansas, including both economic and paleontologic studies. Prerequisites, geology 2 and 3.

Haworth, Moore.

HISTORICAL GEOLOGY AND PALEONTOLOGY.

60.—HISTORY OF INVERTEBRATE LIFE. Two hours credit. First semester, at 9. A consideration of the ancient invertebrate life of the earth, its progressive development, its organization into faunas, and the relations of these faunas to environment. Prerequisites, geology 2 and 3. This course should be followed by zoölogy 61.

Moore.

61.—HISTORICAL GEOLOGY. Five hours credit. Second semester, at 9. A study of the geologic history of the earth, the evolution and development of the contingents, stratigraphy and the history of plant and animal life from the earliest known beginnings to the present. The geologic significance and use of fossils in the identification and correlation of stratified rocks will be discussed. Prerequisites, geology 2 and 3. Elementary zoölogy very desirable. Moore.

62.—INVERTEBRATE PALEONTOLOGY. Five hours credit. First semester, by appointment. A study of the introduction and succession of fossil faunas, their composition, and geographic distribution. Practical exercise in the identification of faunas of different geologic ages is given. A classroom and laboratory course. Prerequisites, geology 2 and 3. Moore.

ECONOMIC GEOLOGY.

70.—MINERAL RESOURCES OF THE UNITED STATES. Three hours credit. Second semester, at 11. A general survey of the mineral resources of the United States with consideration of their distribution, quantity, manner of occurrence, method of production and economic uses. Haworth, Moore, Haynes.

71.—STRUCTURAL AND DYNAMIC GEOLOGY. Five hours credit. First semester, at 2. A careful study of geological dynamics and results of dynamic actions, particularly on stratified rocks, and latest and best methods for field operations while studying same. Prerequisites, geology 2 and 3. Haworth.

72.—ECONOMIC GEOLOGY I. *Metals*. Five hours credit. First semester, at 10. A general study of the metallic products of mine, considered from a scientific and practical standpoint, including the nature, origin, amount and geographic and geologic distribution of the same. Prerequisites, elementary chemistry and geology 2 and 3. Lectures and library work. Haworth, Haynes.

73.—ECONOMIC GEOLOGY II. *Oil, Gas and Coal*. Five hours credit. Second semester, at 10. A careful study of oil and gas regarding nature, origin, geography and geology and economic importance. Much attention is paid to field conditions surrounding different oil fields and best methods for understanding same. Prerequisites, elementary chemistry and geology 2 and 3. Haworth, Haynes.

MINERALOGY AND PETROLOGY.

30.*—COMMON ROCKS AND MINERALS. Two hours credit. Second semester, Tu. W., 1 to 3. A short course designed to give the student familiarity with the common rocks and minerals. Practical identification is based chiefly on evident physical characters. The origin and occurrence of the minerals are discussed and a practical classification of the rocks formulated. Prerequisite, elementary chemistry. Haynes.

31.*—ELEMENTARY MINERALOGY. Five hours credit. Second semester, M. Th. F., 1 to 4. Six hours laboratory work. A brief course in crystallography, and descriptive and determinative mineralogy, including blow-pipe analysis. The characteristics of about 150 important minerals will be studied. Prerequisite, elementary chemistry. Haynes.

81.—ELEMENTS OF PETROLOGY. Two hours credit. First semester, by appointment. Lithology: structure, texture, mineral and chemical composition, and the manner of formation and occurrence of igneous, sedimentary, and metamorphic rocks. Geological problems confronting mining engineers, changes in grade or character of ore deposits. Effect of faulting, folding, and intrusions of igneous rocks. This course is adequate for all general field determinations and as an aid in prospecting. Prerequisites, geology 2 and 3. Haynes.

82.—PETROGRAPHY. Three hours credit. First semester, by appointment. This course consists of training in the methods of petrographic study and includes the macroscopic and microscopic examination of the principal rock types and a consideration of the theories of modern petrology. Prerequisites, geology 2 and 3. Haynes.

GERMANIC LANGUAGES AND LITERATURES.

Professors: ENGEL, THURNAU (Chairman of Department).

Associate Professors: CORBIN, KRUSE.*

Assistant Professors: STURTEVANT, JONES.*

EQUIPMENT. The German department has an excellent stereopticon, a balopticon, and over 1,000 stereopticon slides, illustrating scenery, costumes, and biography; an increasing number of excellent photographs and prints in frames; a complete set of German wall maps showing the various separate states, and a few busts. The department has a Columbia graphophone and is accumulating a series of speech records for illustration of differing German pronunciation. There are 5,230 volumes in the library of the German department, and twenty-one philological and literary journals are received.

The department has also a valuable collection of 3,000 unbound dissertations and school programs, covering all fields of Germanistic scholarship. With the present library and this acquisition of special studies the German department is prepared to encourage graduate study in Germanic languages at the University of Kansas.

ADVICE AS TO CHOICE OF COURSES Students who plan to major in German should consult with the department before the close of the Sophomore year for special guidance in their subsequent work in German and for advice as to courses to be taken in other departments. Courses 1 to 13 are open to all students of the College. Courses 52 to 59 are open to both undergraduates in the College and to graduate students. Courses 1, 2, 3, 4 must be taken in order. Students majoring in German must elect composition, course 10, which should be taken along with course 5 as a preparation for subsequent courses 6 to 13. From these at least one more reading course must be taken in preparation for the major group, courses 50 to 57.

1.—ELEMENTARY GERMAN.—ESSENTIALS OF GRAMMAR. Five hours credit. First semester, 8:30, 9:30, 10:30; second semester, 8:30 and 10:30. Practice in speaking and writing German.

Engel, Thurnau, Corbin, Sturtevant.

2.—GERMAN READING AND GRAMMAR. Five hours credit. First semester, 8:30, 10:30. Second semester, 8:30, 10:30. Selected texts from modern writers of short stories, with composition and conversation based upon them. Review of grammar topics, with exercises.

Thurnau, Corbin, Sturtevant.

3A.—INTERMEDIATE GERMAN. Five hours credit. First semester, 9:30. Second semester, 10:30. Selected narrative prose texts with composition and conversation based upon them; introduction to classics.

Thurnau, Corbin, Sturtevant.

3B.—SCIENTIFIC GERMAN. Five hours credit. First semester, 8:30. Second semester, 9:30. A thorough review of grammar; Das Edle Blut or equivalent text, 40 to 50 pages, as introductory reading matter, followed by a scientific German reader. This course is intended for students majoring in Science, and may not be counted toward a major in German. The aim of the course is to introduce the student to the style and vocabulary of scientific German and develop the ability to read simple scientific writings. Prerequisite, ten hours of College German. Engel.

* Absent on leave.

4A.—GERMAN CLASSES. Three hours credit. First semester, 9:30; second semester, 9:30. Selected works from Lessing, Schiller, Goethe. Thurnau, Sturtevant.

4B.—SCIENTIFIC GERMAN. Three hours credit. Second semester, at 8:30. Reading of scientific German texts in class and assigned readings on selected topics outside of class. This course is also intended for students in engineering and medicine and those majoring in science, and may not be counted toward a major in German. Its aim is to develop the rapid reading of more advanced scientific German in special fields. It is planned as a continuation of course No. 3B, but is open to students who have had 3A. Engel.

4C.—ELEMENTARY GERMAN COMPOSITION. Two hours credit. First semester, 9:30; second semester, 9:30. Students planning to major in German are required to take this course with 4A. Thurnau, Sturtevant.

5.—SCHILLER. Three hours credit. First semester, at 10:30. Students majoring in German should elect intermediate German composition, course 10, in connection with this course. Engel.

6.—IPHIGENIE ANE NATHAN DER WEISE. Three hours credit. Second semester, at 11:30. Thurnau.

7.—MODERN NARRATIVE PROSE. Two hours credit. First semester, at 11:30. Selections from the best-known writers of the nineteenth and twentieth centuries. Prerequisite, German 4. Corbin.

8.—MODERN DRAMATIC PROSE. Two hours credit. Second semester, at 11:30. Reading of representative plays of the best-known modern dramatists, Ludwig, Fulda, Hauptmann, Sudermann, Wildenbruch. Open to students who have had German 4. Thurnau.

9.—HISTORICAL PROSE. Three hours credit. Second semester, at 11:30. Introductory reading of Schönfeld's German Historical Prose, followed by more rapid and extensive reading in selected historical writings. The purpose of this course is to develop rapid and intelligent reading of German works and periodicals in history and sociology. Prerequisite, German 4. (Not given in 1919-20.) Kruse.

10.—INTERMEDIATE GERMAN COMPOSITION. Two hours credit. First semester, 10:30; second semester, 10:30. Required of all students majoring in German. Thurnau.

11.—ADVANCED GERMAN COMPOSITION. Two hours credit. Second semester, at 9:30. This course is planned especially for those students who expect to teach German, but is open to all who have had course 10. The course aims to develop the ability to write correct and idiomatic German in translation and original compositions, with the mastery of a definite vocabulary. Engel.

12.—GERMAN ORAL COMPOSITION. Two hours credit. First semester, at 11:30; second semester, at 11:30. The aim of this course is to aid students in acquiring and using a practical conversational vocabulary. Prerequisite, course 4. Engel, Thurnau.

13.—LESSING'S LAOCOÖN AND DRAMATURGIE. Three hours credit. Second semester, at 8:30. Selected portions of these works, with supplementary reading and discussion of the principles of art and the drama. (Not given in 1919-'20.) Corbin.

50.—GOETHE'S FAUST. (Parts I and II.) Three hours credit. Second semester, at 11:30. Corbin.

51.—HISTORY OF GERMAN LITERATURE. Three hours credit. First semester, at 10:30. A general survey of the history of German literature from the earliest times to the present. Lectures in connection with Thomas' History and Anthology. Thurnau.

52.—HISTORY OF GERMAN PROSE FICTION. Three hours credit. Second semester, at 10:30. Lectures and selected readings. Special emphasis on the growth of realism in the nineteenth century. Thurnau.

53.—THE LYRICS OF GOETHE. Two hours credit. First semester, at 8:30. Study of the lyrics in connection with the life and letters of the author. Corbin.

54.—THE REALISTIC DRAMA. Three hours credit. First semester, at 8:30. A brief consideration of the development of the German drama, followed by a more intensive study of the dramas of Hebbel, Ludwig, and Anzengruber. Lectures, readings, and reports. Kruse.

55.—THE NATURALISTIC DRAMA. Two hours credit. Second semester, at 8:30. Hauptmann, Sudermann, and Halbe. Lectures, readings, and reports. Should be preceded by course 54. Kruse.

56.—THE ROMANTIC DRAMA. Two hours credit. Second semester, at 8:30. Heinrich von Kleist, Grillparzer, and Wagner. Lectures, readings, and reports. This course alternates with course 55. Kruse.

57.—STORM AND STRESS. Three hours credit. Second semester, at 9:30. Special study of the writings of Goethe and Schiller in this period, with lectures and library reading on the lesser writers and the literary movement as a whole. Engel.

58.—MODERN SWEDISH I. Three hours credit. First semester, by appointment. A study of the Swedish language. Elmquist's Swedish Grammar. Sturtevant.

59.—MODERN SWEDISH II. Three hours credit. Second semester, by appointment. Lectures on Swedish literature. Tegnér's *Frithiofssaga*, and other works. Sturtevant.

60.—MODERN NORWEGIAN I. Three hours credit. First semester, by appointment. A study of the Norwegian language. Groth's *Dano-Norwegian Grammar*; Holvik's *Beginners' Book in Norse*. Sturtevant.

61.—MODERN NORWEGIAN II. Three hours credit. Second semester, by appointment. Lectures on Norwegian literature. Ibsen's *Samfundets Støtter* and *Peer Gynt*. Sturtevant.

Swedish and Norwegian are given in alternate years, but either may be given in successive years, if occasion requires.

HISPANIC LANGUAGES AND LITERATURES.

Professor: OWEN (Chairman of Department).

Assistant Professors: GARDNER, OSMA, ALBALADEJO.

Instructors: BYRNS, BRADY, HUFFMAN, N. E. DE ALBALADEJO.

GENERAL STATEMENT. This department formed, until the summer of 1918, a part of the Department of Romance Languages and Literatures. At that time a separation was effected and an independent department created. The term "Hispanic Languages" includes Spanish and Portuguese.

EQUIPMENT. The department possesses the usual pedagogical aids to linguistic study, such as wall maps, charts, lantern slides, and the like. Its library contains resources sufficient to enable students to pursue literary research and special investigation in the several fields included within its scope. The important scientific journals devoted to the subjects are received.

ADVICE AS TO CHOICE OF COURSES. Students who wish to take only five hours of Spanish to satisfy a group requirement must take course 1 if they have entered with no Spanish, course 2 if with one unit, courses 3 and 4 if with two units, courses 5 and 6 if with three units. If they have entered with four units they may select five hours from courses 7, 8, 9, 10, and 12.

Course 1 to 5, inclusive, must be taken in order, save that 3 and 4

should be taken together. Students who major in Spanish will ordinarily be required to take courses 5, 6, 7, 53, 54, 55, 56, and 57; and, if they are subsequently to do graduate work, course 58. Major students are required to take at least ten hours of French. Some knowledge of Latin is all but indispensable and a reading knowledge of German highly desirable. Outside of the linguistic field, courses in modern European and South American history and in English literature should be elected.

Students not majoring in the department, but wishing to be recommended for teaching positions in Spanish, must, in general, have taken courses 5 and 7 and one course numbered above 52.

Students not majoring in the department who desire training in Spanish suitable for the commercial, consular, or diplomatic fields should take courses 6, 7, and 12.

Major students should consult with the department during the second semester of their Sophomore year.

SPANISH.

1.—ELEMENTARY SPANISH. Five hours credit. First semester, at 8:30, 9:30, 10:30, 11:30 and 1:30; second semester, at 8:30, 9:30, 11:30 and 1:30. The essentials of grammar (Fuentes and François, *A Practical Spanish Grammar*). Careful drill in pronunciation; elementary composition and syntax; about 100 pages of easy reading; the beginnings of Spanish conversation. Gardner, Osma, Albaladejo, Byrns, Brady, Huffman, N. E. de Albaladejo.

2.—SPANISH READING AND GRAMMAR. Five hours credit. Second semester, at 8:30, 9:30, 10:30 and 11:30; first semester, at 8:30, 10:30 and 11:30. Reading and translation of easy modern prose (Pérez Galdós, Carrión-Aza, Martínez de la Rosa, etc.); grammar, composition and practice in speaking Spanish. Prerequisite, course 1 (or one year in high school). Gardner, Osma, Albaladejo, Byrns, Brady, Huffman, N. E. de Albaladejo.

3.—MODERN PROSE WRITERS. Three hours credit. Both semesters, at 8:30 and 10:30. Attention is devoted to the student's acquiring the ability to read ordinary Spanish prose with fluency and expression as well as to translate with accuracy. The material is chosen from the writings of modern novelists and dramatists, e. g., Alarcón, Palacio Valdés, Blasco Ibáñez, Moratín, Larra, etc. Prerequisite, course 2 (or two years in high school). Gardner, Brady.

4.—SPANISH COMPOSITION. Two hours credit. Both semesters, at 8:30 and 10:30. Systematic training in writing and speaking Spanish. Translation into Spanish of material from such books as Espinosa's *Spanish Composition*, together with short Spanish themes. Advanced grammar (Ramsey: *A Text-book of Modern Spanish*). Must accompany or be preceded by course 3. Osma, Albaladejo.

5.—SPANISH PROSE AND POETRY. Three hours credit. Both semesters, at 9:30. Specimens of the work of the poets, dramatists, essayists and novelists of the nineteenth and twentieth centuries, e. g., Mesonero Romanos, Pereda, Valera, Pérez Galdós, Benavente, Martínez Sierra, etc. Required of all Spanish majors. Prerequisites, courses 3 and 4 (or three years in high school). Owen.

6.—ADVANCED SPANISH COMPOSITION. Two hours credit. Both semesters, at 9:30. Original Spanish themes. Advanced grammar and syntax. (Ramsey: *A Text-book of Modern Spanish*.) Required of majors. Prerequisites, courses 3 and 4 (or three years in high school). Osma, Albaladejo.

7.—SPANISH CONVERSATION. Three hours credit. First semester (daily), at 1:30. This is a laboratory course in the spoken language, and is conducted wholly in Spanish. Required of majors. Prerequisite, course 5 or its equivalent. Osma, Albaladejo.

8.—INTRODUCTION TO SPANISH LITERATURE. Three hours credit. First semester, by appointment. Rapid reading of modern authors and of a limited number of seventeenth century classics. Prerequisite, course 5 or its equivalent. Gardner.

9.—INTRODUCTORY CERVANTES COURSE. Two hours credit. First semester, by appointment. Reading of selections from the Quijote and the *Novelas ejemplares* (Ford's *Selections from Don Quijote*; Rennert's edition of the *Novelas ejemplares*), together with some consideration of Cervantes' life and times. Prerequisite, course 5 or its equivalent. Gardner.

10.—SELECTED DRAMAS OF THE NINETEENTH CENTURY. Three hours credit. Second semester, by appointment. Reading and interpretation of representative works of the more notable dramatists of the last century (Moratin the younger, Hartzenbusch, López de Ayala, Echegaray, Pérez Galdós, etc.), with some discussion of schools and tendencies. Prerequisite, course 5. Osma.

11.—SPANISH BALLADS AND LYRICS. Two hours credit. Second semester, by appointment. The student will read and study the several types of the popular and of the artistic ballad as well as representative works of the most notable lyric poets, particularly of the last two centuries. (Morley's *Spanish Ballads*; Hill's and Morley's *Spanish Lyrics*.) Prerequisite, course 8. Gardner.

12.—COMMERCIAL SPANISH. Five hours credit. Second semester, at 11:30. Translation of facsimile and original business correspondence; writing of business letters; drafts, invoices and other commercial forms and usages. Reports in Spanish on consular and governmental documents. Conducted in Spanish. Prerequisite, twenty hours of Spanish. Albaladejo.

13.—SPANISH RHETORIC AND VERSIFICATION. Three hours credit. First semester, by appointment. Rhetorical theory and practice; frequent themes in Spanish; the fundamentals of Spanish versification. Conducted in Spanish. Prerequisite, twenty hours of Spanish. (Given in alternate years. (Not given in 1919-'20.) Albaladejo.

51.—ELEMENTARY SPANISH FOR UPPERCLASSMEN. Five hours credit. First semester, at 10:30. For Juniors and Seniors who are beginning Spanish. More comprehensive in scope and more intensive in method than course 1 (q. v.). Owen, Gardner.

52.—SPANISH READING AND GRAMMAR FOR UPPERCLASSMEN. Five hours credit. Second semester, at 10:30. A continuation of course 51. Owen, Gardner.

53.—HISTORY OF MODERN SPANISH LITERATURE. Three hours credit. First semester, by appointment. From 1790 to the end of the Nineteenth century. The influence of French neo-classicism and of the English and French romanticists. The rise of realism. Prerequisite, course 5. Owen.

54.—THE CLASSIC SPANISH DRAMA. Two hours credit. First semester, by appointment, Moreto, Tirso de Molina, Lope de Vega, Calderón and Ruiz de Alarcón. Careful study of selected plays from each dramatist; more rapid reading of others. Prerequisite, course 5. Osma.

55.—CONTEMPORARY SPANISH LITERATURE. Three hours credit. Second semester, by appointment. A study of the literary renaissance in Spain since the Spanish-American war: the "Generation of 1898"; novel, drama, and criticism. Lectures, collateral reading, and reports. Prerequisite, course 53. Owen.

56.—THE SPANISH NOVEL OF THE SEVENTEENTH CENTURY. Two hours credit. Second semester, by appointment. The *Novelas ejemplares* of Cervantes, *Lazarillo de Tormes*, and other picaresque novels. Gardner, Osma.

57.—DON QUIJOTE. Three hours credit. First semester, by appointment. Linguistic and literary study of the text of the great novel. Lectures, collateral readings and reports dealing with Cervantes' life and period. Prerequisite, twenty hours. Albaladejo.

58.—HISTORY OF EARLY SPANISH LITERATURE. Three hours credit. Second semester, by appointment. From the earliest monuments to the Golden Age. Ford's *Old Spanish Readings*: Juan Ruiz, *Libro de buen amor*, etc. Lectures, reports, and term paper. Prerequisite, courses 53 and 56. Owen.

PORTUGUESE.

70.—ELEMENTARY PORTUGUESE. Three hours credit. First semester, by appointment. Branner's grammar and about 100 pages of easy reading. Open to Juniors and Seniors who have had ten hours of Spanish. Osma, Brady.

71.—PORTUGUESE READING, SPEAKING, AND WRITING. Three hours credit. Second semester, by appointment. A continuation of course 70. Osma, Brady.

HISTORY AND POLITICAL SCIENCE.

Professors: HODDER (Head of Department), PATTERSON.

Associate Professors: CRAWFORD, DAVIS, MOORE.

Assistant Professors: MELVIN, CHUBB.

EQUIPMENT. The University library is supplied with all the important secondary authorities and with the source material suitable for undergraduate use. The latter includes the compilation of French, British, and American statutes, and complete sets of the *Archive Parlementaire*, *Hansard's Debates*, and the successive congressional series. The periodical collections are slight but fairly comprehensive, including the *Moniteur* (not yet complete), the *Annual Register*, *Gentleman's Magazine*, *DeBow's Review*, and a file of the *National Intelligencer*. The supply of wall maps for classroom use is exceptionally large.

ADVICE AS TO CHOICE OF COURSES. The plan of the department is to furnish general courses for long historical periods, a series of intensive courses for shorter periods, and a limited number of courses in special fields. The courses in mediæval and English history serve as an introduction to all the work of the department. The general courses in modern European and American history are suited to the needs of students who do not intend to specialize in history, and the general course in one of the two fields may be taken to advantage by those intending to specialize in the other. A reading knowledge of French and German is advantageous to upper-class students of history and indispensable to graduates. Students intending to take a major in this field should, early in their course, consult the instructors in the department in regard to the best arrangement of their work.

RECOMMENDATION OF TEACHERS. Students desiring the recommendation of the department as teachers in high schools must, in addition to completing a major in the department, cover, in a manner satisfactory to the department, the field of history and civics that is taught in the high schools of the state. These courses are 1, 2, 10, either 4 and 5 or 60 and 61, 50, 51, 67, 68, 70 and 71.

HISTORY.

1.—MEDIÆVAL HISTORY I. Three hours credit. First semester, M. W., at 8:30, and third hour by appointment. A history of Europe from the barbarian invasions to the crusades. A fundamental course introductory to all the work in European history. Lectures, quizzes, collateral reading, and reports. Patterson.

2.—**MEDIAEVAL HISTORY II.** Three hours credit. Second semester, M. W., at 8:30, and a third hour by appointment. Covers the history of Europe from the crusades to the beginning of the sixteenth century. Lectures, quizzes, collateral reading, and reports. Continues and should be preceded by mediæval history I. Patterson.

3.—**ENGLISH HISTORY.** Five hours credit. First semester, at 9:30 and 10:30; second semester, at 9:30 and 10:30. Traces the development of England, Scotland, and Ireland with emphasis upon the growth of economic, social, and political institutions. Recitations and occasional lectures. Not open to Juniors and Seniors. Crawford.

4.—**MODERN EUROPE I.** Three hours credit. First semester, at 11:30. A review of the history of modern Europe from the Reformation to the French Revolution. Lectures and recitations. Not open to Juniors and Seniors. Melvin.

5.—**MODERN EUROPE II.** Three hours credit. Second semester, at 11:30. A review of the history of modern Europe from the French Revolution to the end of the Great War. Lectures and recitations. Not open to Juniors and Seniors. Melvin.

6.—**AMERICAN HISTORY, 1789-1920.** Five hours credit. First and second semesters, at 8:30 and 9:30. A systematic study of the material, social and intellectual progress of the American people from the adoption of the constitution to the present time. Does not duplicate the high-school course. Not open to Juniors and Seniors. Davis.

50.—**GREEK HISTORY.** Two hours credit. First semester, at 10:30. The course will trace the political and intellectual development of the Greeks and emphasize social and economic changes. Lectures, quizzes, and collateral reading. (Given by department of Ancient Languages.) Brandt.

51.—**ROMAN HISTORY** Two hours credit. Second semester, at 10:30. A general survey, in which the period of the late republic and early empire receives special attention. Not necessarily preceded by Greek history. (Given by department of Ancient Languages.) Brandt.

52.—**MEDIAEVAL INSTITUTIONS.** Two hours credit. First semester, at 9:30. Growth of political and ecclesiastical institutions during the feudal period, and a detailed analysis of the organization of society in the twelfth and thirteenth centuries. Must be preceded by courses 1 and 2. (Not given in 1920-'21.) Patterson.

53.—**MEDIAEVAL CULTURE.** Two hours credit. Second semester, at 9:30. A survey of the intellectual development of Europe from Augustine to Dante, including such subjects as mediæval literature, scholasticism, the universities, architecture, and the rise of the vernacular languages. Must be preceded by courses 1 and 2. (Not given in 1920-'21.) Patterson.

54.—**ITALIAN RENAISSANCE.** Two hours credit. First semester, at 9:30. A survey of the political, social, economic, intellectual, and artistic development of the Italian people from the fourteenth to the sixteenth centuries. Must be preceded by courses 1 and 2. Patterson.

55.—**PROTESTANT REVOLT.** Two hours credit. Second semester, at 9:30. After a review of the social, economic, and intellectual antecedents of the movement in Germany, the career of Luther and the progress of the revolt to the Peace of Augsburg will be traced. Must be preceded by courses 1 and 2. Patterson.

56.—**ENGLISH INSTITUTIONS I.** Two hours credit. First semester, at 8:30. Treats of the Anglo-Saxon government, the foundations of parliament, the central and local government, the judiciary, feudalism, the manorial system, and gilds. Lectures, reports, and collateral reading. (Not given in 1920-'21.) Crawford.

57.—ENGLISH INSTITUTIONS II. Two hours credit. Second semester, at 8:30. Treats of the Tudor absolutism, the Reformation, the struggle between the crown and parliament, with special emphasis upon the nineteenth century. Continues and must be preceded by English Institutions I. (Not given in 1920-'21.) Crawford.

58.—HISTORY OF THE COMMON LAW I. Two hours credit. First semester, at 8:30. Treats of the fundamental principles of Anglo-Saxon law and procedure, the transition to common law, the growth of the judiciary, and the general principles of status and of real property. Primarily designed for students preparing for law, journalism, and business. Crawford.

59.—HISTORY OF THE COMMON LAW II. Two hours credit. Second semester, at 8:30. Treats of the general principles of personal property, contracts, torts, crimes, and civil and criminal procedure. Continues and must be preceded by History of Common Law I. Crawford.

60.—FOUNDATIONS OF MODERN EUROPE. Three hours credit. First semester, at 1:30. A survey of the political and social development of Europe from 1500 to 1815. Not open to students who have had course 4. Melvin.

61.—HISTORY OF CONTEMPORARY EUROPE. Three hours credit. Second semester, at 1:30. Covers the history of Europe from 1815 to 1914, with special reference to the causes of the Great War. Not open to students who have had course 5. Melvin.

62.—FRENCH REVOLUTION. Three hours credit. First semester, at 2:30. The origin and development of the revolutionary movement in France and its effect upon Europe. Should be preceded by course 4 or 60. Melvin.

63.—NAPOLEON. Two hours credit. Second semester, at 2:30. The career and age of Napoleon with special reference to the revolutionary reconstruction of France and of Europe. Continues and should be preceded by the preceding course. Melvin.

64.—CONTEMPORARY DIPLOMACY. Three hours credit. First semester, at 10:30. A review of international relations since 1882, with emphasis upon the problems that have arisen since 1904. Davis.

65.—PROBLEMS OF MODERN EUROPEAN HISTORY I. Two hours credit. First semester, at 2:30. Studies in special fields of modern European history, designed to give intensive study of certain topics covered in the general courses and preliminary training in historical research. The problem for 1920-'21 will be the Russian revolution. Must be preceded by the general course covering the field of research. Melvin.

66.—PROBLEMS OF MODERN EUROPEAN HISTORY II. Two hours credit. Second semester, at 1:30. This course is the same in character as the preceding, and either continues the work of the preceding course or takes up new topics for students not having taken the preceding course. Melvin.

67.—AMERICAN COLONIAL HISTORY. Two hours credit. First semester, at 2:30. This course covers the discovery of America, the period of Spanish and French exploration, and the origin and development of the English colonies. Hodder.

68.—AMERICAN REVOLUTION AND THE CONSTITUTION. Three hours credit. Second semester, at 2:30. A study of the causes and results of the American Revolution and of the formation of the constitution. A continuation of course 67, but not necessarily preceded by it. Hodder.

69.—AMERICAN CONSTITUTIONAL LAW. Two hours credit. Second semester, at 2:30. A study of the judicial construction of the constitution of the United States from the political rather than from the legal standpoint. Recitations. Hodder.

70.—PRESIDENTIAL ADMINISTRATIONS I. Five hours credit. First semester, at 3:30. The political and constitutional history of the United States from 1789 to 1840. A topical treatment of the most important phases of American history. Hodder.

71.—PRESIDENTIAL ADMINISTRATIONS II. Five hours credit. Second semester, at 3:30. The political and constitutional history of the United States from 1840 to 1900. The causes and results of the Civil War. Continuation of course 70, but not necessarily preceded by it. Hodder.

72.—LATIN AMERICA. Three hours credit. Second semester, at 11:30. The origin of the Spanish and Portuguese colonies, the social evolution of colonial Latin America, the modification of European institutions, the separation from Spain and Portugal and the succeeding development of the Latin American states with the emphasis upon the nineteenth and twentieth centuries. (Not given in 1920-'21.) Davis.

73. MODERN ASIA. Three hours credit. Second semester at 11:30. An historical survey of the present distribution and condition of races in Asia, of surviving Asiatic culture, of European political and commercial control in Central Asia and India, of the rise of Japan as a world power and of recent nationalistic tendencies in Persia, Korea, India and China. Davis.

POLITICAL SCIENCE.

10.—AMERICAN GOVERNMENT. Five hours credit. First and second semesters, at 8:30, 9:30 and 10:30. This course is a general and systematic study of the development and structure of American government, both national and local, with emphasis on actual workings; it also serves as a foundation for other courses in political science. Moore, Chubb.

81.—MUNICIPAL GOVERNMENT. Three hours credit. Second semester, at 9:30. A study of the government of the American city, its development and structure, its relation to the state, the various types of organization, and the participation of the people in city affairs. Comparisons between American and European cities in form and function are drawn in an attempt to assess American municipal progress. Prerequisite, course 10, or an equivalent. Moore.

82.—MUNICIPAL ADMINISTRATION. Three hours credit. First semester, at 11:30. The functions and administration of the city, particularly the American city. Such topics as the following will be discussed: Streets and city planning, the utility problems of light, water, lighting and transportation, fire protection, municipal finance, and school and police administration. Prerequisite, course 81. Moore.

83.—AMERICAN STATE GOVERNMENT. Two hours credit. Second semester, at 11:30. The original principles of state government in the United States, the development of state constitutions, the problems of modern state government, and an analysis of the various projects for reorganization and reform. Prerequisite, course 10, or an equivalent. Moore.

84.—COMPARATIVE GOVERNMENT. Three hours credit. First semester, at 10:30. An examination of the constitutions and political systems of the most important states of the world, with emphasis upon recent changes. Prerequisite, course 10, or equivalent. Chubb.

85.—THE JUDICIARY. Two hours credit. Second semester. A study of the organization and jurisdiction of the judiciary. Special attention will be given to the development of the courts, their power to declare statutes unconstitutional, their importance in the American government, and their influence in the field of social and economic legislation. Prerequisite, course 10, or an equivalent. Moore.

86.—POLITICAL PARTIES. Two hours credit. First semester, at 11:30. The place of the party system in democratic government; the organization and development of party machinery; party abuses and the attempt to subject parties to popular control. Prerequisite, course 10, or an equivalent. Chubb.

87.—INTERNATIONAL LAW. Three hours credit. First semester, at 9:30. A study of the principles of public international law. A liberal use is made of cases and public documents in this course. Prerequisite, course 10, or equivalent. Moore.

88.—ELEMENTARY LAW. Three hours credit. Second semester, at 10:30. A study of the fundamental principles of the common law, designed to give familiarity with common legal terms and court procedure, and emphasizing such subjects as torts, contracts, real and personal property. Prerequisite, course 10, or an equivalent. Moore.

89.—PRINCIPLES OF POLITICAL SCIENCE. Three hours credit. First semester, at 9:30. The fundamental principles of political science and the part they have played in the practice of the modern state, together with a critical examination of the theories of sovereignty, nationalism, the nature of the state and state purpose. An attempt is made in this course to find a reasonable basis for the existing state organization and its activities. Prerequisite, five hours of political science. Moore.

90.—HISTORY OF POLITICAL THEORIES. Two hours credit. Second semester, by appointment. A brief review of ancient and mediæval political philosophy, followed by a study of modern English and continental political theories. A short time is given to the consideration of typical American theory. Prerequisite, eight hours of political science. Seniors may enroll by permission of the instructor. Moore.

HOME ECONOMICS.

Professor: SPRAGUE (Head of Department).

Assistant Professors: MEGUIAR, ANDERSON.

Instructors: CLINE, WEBB.

EQUIPMENT. The department occupies nine rooms in Fraser Hall. These include two food laboratories, a chemical laboratory, a research laboratory, a textile and sewing room, and two lectures rooms with an experimental and demonstration kitchen in connection with one of them. The laboratories are equipped both for general class work and for research. The library contains the standard books on the subject.

ADVICE TO STUDENTS. The courses of instruction given in this department are planned to meet the needs of three classes of students: (a) those who desire a knowledge of the general principles and facts of home economics; (b) those who wish to major in home economics for the purpose of teaching the subject in secondary schools and colleges; (c) those who are interested in preparing to become dietitians, or to follow other professions.

Students who belong to groups (b) and (c) are advised to begin their work in the department as early as possible in order to secure a proper sequence of the elementary and advanced subjects; to have a desirable distribution of courses; to become thoroughly familiar with the subject matter before undertaking the course in the teaching of home economics and practice teaching; and, in the case of those who wish to do more advanced work, to provide for the necessary training in the fundamental sciences. Such students should consult the head of the department before arranging their courses.

ADVICE AS TO COURSES. Courses of a general nature which are suggested for students who are not majoring in the department, but who wish some training in the subject pertaining to the home, are as follows: (1) Home Architecture, (2) Home Decoration, (6) Food and Nutrition,

(65) Public Aspects of the Household, (71) Textiles, (72a) Clothing Design.

MAJOR REQUIREMENTS. Students may satisfy part of the requirement for the major in the department by the election of any of the following allied subjects in other departments: (53) Bacteriology of Foods, (60) Chemistry of Food Products, (52D) Food Analysis, (64) Heredity in Relation to Eugenics.

In general, the major in the department is as follows:

MAJOR IN HOME ECONOMICS.

(*Freshman-Sophomore.*)

PREREQUISITE.	PREScribed.	Hrs.	SUGGESTED.	Hrs.
	1. Home architecture and sanitation	2	0. Sewing	0
Chemistry 1 or equivalent..	3. Selection and preparation of food	5	2. Home decoration I. . .	2
Selection and preparation of food	4. Economic uses of food*	5		

(*Junior-Senior*)

	71. Textiles	3	51. Dietetics	5
			72. a Clothing (design) ..	3
			b Clothing (mfg.) ...	2
Selection and preparation of foods	80. Home administration, 3		65. Public aspects of the household	3
Home architecture, etc...				
Economics 1				
Sociology				
Economic uses of food...	52. Special problems in home economics, 3-5		81. Home decorations II. .	3
Organic chemistry, or...			53. Special problems in home economics ..	3-5
Bacteriology, or				
Botany 4, or.....				
Dietetics				

0.—PLAIN SEWING AND GARMENT MAKING. No credit. First semester, Tu. Th., 1:30 to 4:20. Principles and practice in hand and machine sewing, drafting, and making of simple garments. This course is offered because the majority of students have not had the opportunity of taking it in the high school. It is prerequisite to course 72b. Fee, \$1. Cline.

1.—HOME ARCHITECTURE AND SANITATION. Two hours credit. Both semesters, 9:30 and 1:30. A study of the evolution of the house; the development of its functions as a place of shelter, defense, and the center of family life; types of domestic architecture; the planning and care of the house with regard to the comfort, convenience, and health of the family. Meguiar.

2.—HOME DECORATION I. Two hours credit. Both semesters, 11:30 and 2:30. The theory of color and decoration and its application in home decoration; materials suitable for various purposes in the home; furnishings from an economic, sanitary, and artistic standpoint. Meguiar.

3.—SELECTION AND PREPARATION OF FOOD. Five hours credit. Both semesters, M. W. F., 8:30 to 10:20, and Tu. Th., 9:30; M. W. F., 10:30 to 12:20, and Tu. Th., 10:30. An experimental study of the different classes of nutrients, with the application of this knowledge in the selection and preparation of foods. Prerequisite, chemistry 1. Advised, physiology 1. Fee, \$5. Anderson, Cline.

4.—ECONOMIC USES OF FOOD.* Five hours credit. Both semesters, M. W. 1:30 to 2; Tu. Th., 1:30 to 4:20. The principles of food preservation, marketing and domestic storage; the planning of meals to prevent waste, give variety, and regulate cost according to food values. Prerequisite, course 3. Fee, \$4. Anderson, Webb.

6a —FOOD AND NUTRITION. Three hours credit. Both semesters, at

11:30. The purpose of this course is to present in a nontechnical way the more elementary problems of food and nutrition with reference to the food requirements of man and the considerations which should underlie our judgment of the nutritive value of food. Designed for the general student. Anderson.

6b.—FOOD AND NUTRITION. (Laboratory work.) Two hours credit. Both semesters, Tu. Th., 10:30 to 12:20. To be taken only as a parallel course with 6a. This course is designed to give a practical application of the principles embodied in 6a. Fee, \$3. Webb.

10.—HOME NURSING. Three hours credit. Both semesters, at 9:30. Home hygiene; home care of the sick; prophylaxis; symptoms of disease; first aid and emergencies; maternity nursing; infant care and feeding. No prerequisites. Lecture and demonstrations daily; practice as arranged. Cline.

51.—DIETETICS. Five hours credit. Second semester, M. W. F., 10:30; and Tu. Th., 10:30 to 12:20. The principles of diet; the relation of food to health; food habits and dietary standards; the dietetic treatment of diseases; experimental study of special problems in nutrition. Prerequisites, economic uses of food, organic chemistry, physiology 1. Physiological chemistry advised. Fee, \$2.50. Anderson.

52.—SPECIAL PROBLEMS IN HOME ECONOMICS I. Three or five hours credit. Both semesters. A critical study of common theories and practice in food preparation and other home activities, with experimental investigation of special problems. Prerequisites, economic uses of food; elementary organic chemistry or bacteriology, or botany, or dietetics. Qualitative and quantitative chemistry advised. Fee, \$3 or \$5. Sprague.

53.—SPECIAL PROBLEMS IN HOME ECONOMICS II. Three or five hours credit. Second semester. The work of each student will be under the direction of the member of the staff in charge of the subject chosen. A continuation of course 52. Fee, \$3 to \$5.

65.—PUBLIC ASPECTS OF THE HOUSEHOLD. Three hours credit. Both semesters, 11:30. This course is designed to give the student a view of the broader aspects of home economics as it is related to the welfare of the community. Special emphasis will be laid upon the state and federal laws which are most directly connected with the home. Designed especially for the general student. Sprague.

71.—TEXTILES. Three hours credit. Both semesters, 8:30 to 10:20. A study of the production and manufacture of textiles from the standpoint of the consumer; the properties and uses of the different textile fibers and fabrics; tests for adulteration; principles of cleaning fabrics. Prerequisite, chemistry 1. Fee, \$2. Webb.

72a.—CLOTHING DESIGN. Three hours credit. First semester, 10:30. A study of the history of costume with emphasis upon the factors influencing its design; the psychology of fashion; the hygiene of dress. Prerequisite, design I. Meguiar.

72b.—CLOTHING MANUFACTURE. Two hours credit. Second semester, Tu. Th., 1:30 to 4:20. Laboratory practice in carrying out designs; economic problems of the construction of clothing at home; economic and sociological phases of the clothing industry. Prerequisites, course 0, or equivalent, and 72a. Fee, \$2. Meguiar.

80a.—HOME ADMINISTRATION. Three hours credit. Second semester, 9:30. A study of the home as a social unit and a classification of its problems; a brief history of the changes that have come in the work of women in the home; the economic and sociological value of home-making; the organization of the household, division of the income, general principles of buying. Prerequisites, economic uses of foods, or textiles; home architecture and sanitation, sociology 1, economics 1, or 90. Advised, zoölogy 60 and 64. Sprague.

80b—HOME ADMINISTRATION. Two hours credit. Second semester. Laboratory work in a practice house to provide actual experience in household management, including practice in household operations, budgeting and accounting and administration of group relations under as near as possible the normal living conditions of the home and of the community. Required for those who wish to qualify as teachers of home-making in high schools receiving Smith-Hughes aid. Cline.

81.—HOME DECORATION II. Three hours credit. Second semester, 10:30 to 12:20. A continuation of home decoration I, emphasizing the general principles of design in their application in the home. A study of selected problems in practical household designing. Prerequisite, design I. Meguiar.

82.—HOME NURSING. Three hours credit. Second semester, at 1:30. A special course designed to qualify teachers of home-making courses in high schools receiving Smith-Hughes aid. Lectures, demonstrations, and practice work. Cline.

JOURNALISM.

Professor: FLINT (Chairman of Department).

Assistant Professor: DILL.

Instructors: BROWN, LEWIS, POTTER.

Men and women intending to enter newspaper work as a profession or as a stepping stone to higher literary endeavor are here given the opportunity for specialized training accorded other professions. The department offers technical courses in the Sophomore, Junior, and Senior years, makes suggestions as to preparatory courses in the Freshman year, and recommends supplementary courses to be pursued in the four years.

Students intending to do their major work in this field, and particularly those planning to do graduate work in journalism, should consult the faculty of the department as early as possible.

Those interested in the study of the newspaper as an organ of democracy or in its historical or ethical aspects will find in the department several courses general in their scope.

PRACTICAL WORK. The *University Daily Kansan*, published by students of the department of journalism, affords every opportunity to put the theory of the classroom into practice. From reporter to editor-in-chief, the student learns at first hand the organization of the newspaper office, becomes familiar with the mechanical, economic and ethical problems, and acquires speed and accuracy in reportorial work and editorial supervision. Instruction in business management, particularly the science of cost finding, is emphasized.

EQUIPMENT. The laboratory of the department has all the facilities that go to make up a modern "back office." It is equipped with type-setting machines—linotypes and a monotype—a complete composing room, a book and newspaper press, and job presses.

Reporters' desks in the "front office" are equipped with typewriters, in the use of which training is given.

The library of the department, containing a wide assortment of books on all phases of journalism, is in rooms convenient to the news room and offices. Thirty-six metropolitan dailies, representing the great newspaper personalities of the world, are received, together with the leading national weeklies and magazines. Five hundred Kansas papers also reach the laboratory regularly.

FEES. Each student enrolled in the department pays a fee of one dollar to cover, in part, the cost of newspapers and magazines used in the daily work.

DESCRIPTION OF COURSES.

1.—THE NEWSPAPER I.* Three hours credit. Both semesters. First semester, at 8 and 11; second semester, at 10. Materials and methods. The news story. The human-interest story. The feature. The editorial.

Gathering and writing campus news. Correspondence for metropolitan papers. The fundamental principles of accuracy and style. Prerequisites, rhetoric 1 and 2. Dill, Lewis, Potter.

2.—**THE NEWSPAPER II.*** Three hours credit. First semester, at 10; second semester, at 8 and 11. Organization of the office; function of departmental heads; subeditors—financial, sporting, society, and others; copy readers; reporters; press associations. Practical work daily in reporting, and in receiving world news by telegraph and telephone. Accuracy, plus speed. Lectures and practice in newspaper photography. Prerequisite, course 1. Dill.

3.—**COMPARATIVE JOURNALISM.*** Two hours credit. First semester, at 10. A general course for those interested in the newspaper whether or not intending to prepare for the profession of journalism. Intensive study of great newspaper personalities of all types in American journalism, with lectures on journalism in England, France, Germany, and the Orient. Dill.

4.—**HISTORY OF AMERICAN JOURNALISM.*** Two hours credit. Second semester, at 10. A rapid survey of English journalism from its beginning, followed by a comprehensive study of American journalism from the early beginnings in Massachusetts, through succeeding periods, to the present. Special studies of the careers of great American editors. Dill.

51.—**MAGAZINE WRITING.** Three hours credit. First semester, at 11. Intensive study of major types of magazine special articles: nature, and sources of material; variety in treatment. Coördinated practice work judged on its publication possibility. Brief survey of the growth of magazines in England and America. Class discussions and personal conferences on manuscript. Courses 1 and 2 recommended, but not required, as prerequisites. Lewis.

52.—**THE SHORT STORY.** Three hours credit. Second semester, at 11. Comprises (1) reading of selected short stories for analytical and comparative purposes to illustrate principles governing construction of short stories, (2) attention to guiding lectures, (3) creative writing, and (4) participation in class critical discussions and personal conferences on manuscript. Production judged by availability for publication. Lewis.

53.—**INTERPRETATION OF THE NEWS I.** Two hours credit. First semester, at 10. Study of the history and technique of the editorial. Writing the shorter editorial. Working out appropriate forms in close study of contemporary editorials. Class lectures, discussions, and personal conferences to criticize manuscript. Courses 1 and 2 recommended as prerequisites. Flint.

54.—**INTERPRETATION OF THE NEWS II.** Two hours credit. Second semester, at 10. Writing the longer editorial from mature determination of significance and relationship of facts in state, national, and international news. Thorough training in lucid, logical, adequate, concise expression of opinion in vigorous, moving English style. Lectures and personal conferences. Courses 1 and 2 and 53 recommended as prerequisites. Flint.

55.—**ELEMENTS OF ADVERTISING.** Three hours credit. First semester, at 10. A survey, descriptive and historical, of the whole field of advertising. A study of the functions of advertising and of its organization as a business. Designed for students interested in any line of business as well as for those intending to continue the study of advertising itself. Course 1 recommended as a prerequisite. Flint.

56.—**ADVERTISING COPY.** Three hours credit. Second semester, at 10. A study of the application of principles of psychology to the writing of advertisements. Typography and display of advertising matter. Prac-

tice in writing copy and preparing layouts, and also, for members of the class who wish it, experience in advertising salesmanship. Course 1 and courses in the department of psychology recommended as prerequisites. Need not be preceded by course 55. Flint.

57.—ADVERTISING CAMPAIGNS. Three hours credit. First semester, at 11. Solution of practical advertising problems and planning of campaigns. Study of mediums for reaching the public. Special forms of publicity. Printing methods. Illustrating. Retail, mail order, municipal, church, and idea advertising. Experience in salesmanship for members of the class who desire it. Prerequisite, course 55 or 56 or equivalent. Courses 1 and 2 recommended. Flint.

58.—NEWSPAPER ADMINISTRATION I. Two hours credit. First semester, at 9. A study of the business side of newspaper publishing, designed to familiarize the student with the equipment of a newspaper plant, the expenses of publishing a paper, its sources of income, the handling of circulation and advertising, and the operation of a job-printing establishment. Course 1 recommended as a prerequisite. Dill.

59.—NEWSPAPER ADMINISTRATION II. Two hours credit. Second semester, at 9. A course in efficiency methods. Intensive study of methods for finding printing costs. How to conduct a printing business efficiently. Estimating. The terminology of printing. Judging paper stock. Course 1 recommended as a prerequisite. Need not be preceded by course 58. Dill.

60.—EDITORIAL PROBLEMS AND POLICIES I. Three hours credit. First semester, at 9. Ethics of journalism. Problems of the editor; his relation to the public. The managing editor: outlining newspaper campaigns. The news editor: his editorial capacity in display, quantity and position of news, and kindred problems. Prerequisite, course 1. Recommended to follow ten hours of journalism. Flint.

61.—EDITORIAL PROBLEMS AND POLICIES II. Three hours credit. Second semester, at 9. Consideration of typical problems growing out of the relations between the newspaper and its readers, its advertisers, its community, and the public in general. Sources of the newspaper's influence. Fields for dynamic journalism. Prerequisite, course 1. Need not be preceded by course 60, but recommended to follow ten hours of journalism. Flint.

62.—EDITORIAL PRACTICE I. Two hours credit. First semester, at 11 and 3. Practical application of the editor's work in supervising and in handling, collecting, preparing and editing copy for dailies, weeklies, and class publications. Actual copy-reading of local news, Associated Press and United Press full reports and special stories. The principles of make-up, with particular stress on headline writing. Prerequisite, course 1. Potter.

63.—EDITORIAL PRACTICE II. Two hours credit. Second semester, at 11 and 3. Continuation of 62, with a comprehensive review of libel, postal regulations, copyright. The student is required to cover the field of libel in law, text and case books, and is given practice in eliminating libelous assertions from copy. A comparison of the styles of different papers as affecting the copy reader, particularly as to make-up. Prerequisites, courses 1 and 62. Potter.

65.—THE MECHANICS OF PRINTING. No credit. Both semesters. Two lectures and eight hours laboratory weekly. Students are taught to set type, make up and lock up forms, etc. This class will work on the mechanical end of the University publications. Dill.

66.—THE ART OF PRINTING. No credit. Both semesters. Two lectures and five hours laboratory. Lectures on history and development of print-

ing, with practical work in designing advertisements, title pages, etc., and study of color schemes. Brown.

NOTE.—Courses 65 and 66 are designed, first, to give the student a working knowledge of the mechanical department of a newspaper, that he may be better fitted for editorial supervision; second, to better equip those students who plan to own country papers; third, to reinforce rhetorical principles of mass, proportion, accuracy, emphasis, contrast, harmony, unity, and variety, by practical work with type faces.

67.—ADVANCED NEWS WRITING I. Two hours credit. First semester, at 8. Survey of news types, estimation of news values, the utilization of ways and means of exploring, assembling, and handling. Class analysis of best specimens, assigned "rewrite" synthesis illustrative of the ascertained common procedures. Lectures and class discussions. Prerequisites, courses 1 and 2. Lewis.

68.—ADVANCED NEWS WRITING II. Two hours credit. Second semester, at 8. Special assignments for mature practice, especially in getting and constructing campus feature stories; the University publicity stories of wider scope; town, city, and state popular-movement, business, industry, farming, commercial-scientific, and individual-personal newspaper special section stories. Class exchange and criticism; effort to place successful copy. Prerequisites, courses 1 and 2. Need not be preceded by course 67. Lewis.

LAW.

The following courses in the School of Law are open to College Seniors who do not elect courses from other professional schools, but not more than fifteen hours may be counted towards the degree of bachelor of arts. Students desiring admission to any of these courses must register in the School of Law as well as in the College, and will be admitted to the classes as first-year law students.

51.—ELEMENTARY LAW Two and one-half hours credit. First half of first semester.

52.—CRIMINAL LAW. Five hours credit.

53.—AGENCY. Two and one-half hours credit.

54.—CONTRACTS. Five hours credit.

56.—TORTS. Three and one-half hours credit.

57.—SALES. Two and one-half hours credit.

58.—DAMAGES. Two and one-half hours credit.

59.—PERSONAL PROPERTY. Two and one-half hours credit.

60.—EQUITY I. Two and one-half hours credit.

61.—REAL PROPERTY I. Two and one-half hours credit.

62.—PROVISIONAL AND EXTRAORDINARY REMEDIES. Two and one-half hours credit.

MATHEMATICS.

Professor: ASHTON (Chairman of Department).

Associate Professors: MITCHELL, STOFFER, LEFSCHETZ.

Assistant Professors: JORDAN, WHEELER.

Instructors: MARM, BLACK, NELSON, GOUWENS, RICE.

EQUIPMENT. The department of mathematics has a good collection of models in wood, plaster of paris, and strings illustrating various theorems of geometry and analysis. The library contains about 2,000 volumes relating to mathematics. The department also has in its possession a large collection of elementary textbooks, which is of especial value to prospective teachers, affording an excellent opportunity for comparing various methods of presentation.

ADVICE AS TO CHOICE OF COURSES. The courses in the department are arranged to meet the needs of four classes of students, as follows: (1)

those who wish to study mathematics for general culture; (2) those who wish to take mathematics in preparation for advanced work in other departments; (3) those who wish to become teachers of mathematics in secondary schools; (4) those who wish to specialize with a view to finding a career in teaching and research in mathematics. The courses are arranged in three groups; the elementary group, open to all undergraduates; a more advanced group, open to Juniors, Seniors, and graduate students; and the graduate courses, open only to graduate students. (For a list of the latter courses see the announcements of the Graduate School.)

(1) For general culture all or a part of courses 1 to 11 in proper sequence are recommended; they may be taken two at a time (*i. e.*, 2 and 3, 4 and 5, etc.)

(2) Students whose major work is in another department where mathematics is needed should consult with the chairman of the department in question regarding the mathematical courses they should elect.

Students in groups (3) and (4) will naturally major in the department.

MAJOR WORK. Under the general laws of the College, students majoring in this department must complete at least 30 hours of mathematics, of which at least 12 hours must be chosen from courses numbered 50 and above. Courses 2 to 7 are required of all students majoring in the department.

1.—**SOLID GEOMETRY.** Two hours credit. Second semester, at 10. The usual theorems and constructions of standard textbooks and applications to the mensuration of surfaces and solids. Open to all students who do not offer solid geometry for entrance. Rice.

2a.—**COLLEGE ALGEBRA.** Three hours credit. First semester, 8, 9, 10, 11, 1, 2; second semester, 8, 9, 10, 11, 1. Rapid review of elementary algebra; graphic representation; logarithms; determinants; theory of equations; Horner's method of approximation. Stouffer, Marm, Black.

2c.—**COLLEGE ALGEBRA.** Five hours credit. Both semesters, at 8. This section is intended for students who have entered with only one unit of algebra. It includes a thorough review of elementary algebra and as many of the subjects of 2a as possible. It may also be taken by students offering one and a half units of elementary algebra, but for such students it will give only three hours credit. Marm, Black, Nelson.

3a.—**PLANE TRIGONOMETRY.** Two hours credit. First semester, 8, 10, 11, 1, 2; second semester, 8, 9, 10, 11. The six trigonometric functions; principal formulas of plane trigonometry, trigonometric equation, solution of triangles, and practical problems. Must be preceded or accompanied by course 2a, or 2c. Stouffer, Marm, Black.

3b.—**PLANE TRIGONOMETRY.** Three hours credit. First semester, at 11:30. This course is intended for pre-medical students who do not wish to take both algebra and trigonometry. The same subjects as in 3a, accompanied by considerable work in algebra. Students following this course by 2a will receive only five hours credit for the two courses. Nelson, Marm.

4.—**ANALYTICAL GEOMETRY I.** Two hours credit. First semester, at 10 and 11; second semester, at 8 and 10. The straight line, circle, and elementary curve tracing. Prerequisites, courses 2 and 3. Stouffer, Nelson.

5.—**CALCULUS I.** Three hours credit. First semester, at 10; second semester, at 8 and 10. Differential calculus; fundamental principles; derivatives; applications to geometry and mechanics; maxima and minima; indeterminates. Open to students who have completed or are taking course 4. Mitchell, Nelson.

6.—ANALYTICAL GEOMETRY II. Two hours credit. First semester, at 11; second semester, at 9. Conic sections; polar coördinates; loci problems; higher plane curves. Prerequisite, course 4. Ashton, Stouffer.

7.—CALCULUS II. Three hours credit. First semester, at 11; second semester, at 9. Integral calculus; integration; definite integrals; applications to lengths, areas, and volumes. Prerequisites, courses 5 and 6; may be taken at the same time with course 6. Mitchell, Stouffer.

9.—SOLID ANALYTICAL GEOMETRY.* Two hours credit. Second semester, at 9. Solid analytical geometry of the straight line, plane, and the conicoids. Prerequisite, course 7. Ashton.

10.—MATHEMATICAL THEORY OF INVESTMENT* Three hours credit. Second semester, at 11. This course will cover, first, the principles of infinite series as applied to annuities, etc., and the development of facility in logarithmic computation; second, the fundamentals of the theory of probability, with applications. Prerequisite, course 2.

Wheeler.

11.—THEORY OF EQUATIONS.* Three hours credit. Second semester, at 9. Algebraic solution of cubic and quartic, symmetric functions, transformations of equations, solutions of numerical equations in one variable, systems of equations, determinants and elimination. Open to students who have had course 7, and to others upon permission of the instructor.

Mitchell.

50.—ANALYTICAL MECHANICS. Three hours credit. Second semester, at 11. This course is recommended to those who desire a more thorough knowledge of the integral calculus and its practical applications. It will include center of gravity, moments of inertia, and the general theory of rectilinear and curvilinear motion in space. A large number of practical problems will be solved. Prerequisites, courses 2 to 7, and either 51 or physics 50.

Lefschetz.

51.—DIFFERENTIAL EQUATIONS. Three hours credit. First semester, at 9. Ordinary differential equations; integration in series; partial differential equations; applications to geometry and physics. Prerequisites, courses 2 to 7.

Mitchell.

52.—ADVANCED CALCULUS. Three hours credit. First semester, at 10. Critical review of the fundamental notions of calculus; expansion in series; definite integrals; multiple integrals; line integrals; applications to geometry and physics. Prerequisites, courses 2 to 7. Jordan.

53.—ELLIPTIC INTEGRALS. Two hours credit. Second semester, at 10. Elliptic integrals; Jacobian elliptic functions; application to geometry and physics. Prerequisites, courses 2 to 7.

Ashton.

54.—ELEMENTARY NUMBER THEORY. Two hours credit. Second semester at 8. Theory of divisibility, prime numbers, congruences, elements of theory of residues and of representation of a number by the simplest quadratic forms.

Lefschetz.

55.—SERIES. Two hours credit. First semester, at 9. A study of selected topics in Fine's College Algebra. The idea of a number field; the development of the number system of algebra; definition of irrational number; fundamental theorems on limits; convergence of infinite series; power series; operations with infinite series; binominal, exponential and logarithmic series; infinite products. Prerequisites, courses 2 to 7.

Ashton.

57.—COMPLEX NUMBERS. Three hours credit. Second semester, at 10. Analytic and geometric properties of complex numbers; conditions of functionality; integration; circular transformation; applications. Prerequisite, course 55.

Ashton.

59.—MODERN GEOMETRY I. Three hours credit. First semester, at 8. Fundamental forms; the principle of duality; perspectivity and projectivity between one-dimensional forms; one-dimensional coördinate

systems; double ratio; linear transformations; involution; the harmonic properties of the complete quadrangle and quadrilateral. Prerequisites, courses 2 to 7. Stouffer.

60.—MODERN GEOMETRY II. Three hours credit. Second semester, at 8. Two-dimensional coördinates, projective and special, both point and line; pencils and ranges of conics; collineations and introduction to continuous groups of collineations in the plane. Prerequisite, course 59. Stouffer.

62.—HISTORY OF MATHEMATICS. Two hours credit. First semester, at 11. The historical development of elementary mathematics, including trigonometry, analytical geometry, and the calculus. Outlines, assigned readings, and class discussions. Open to Seniors who have had course 7. Mitchell.

MEDICINE.

College students who have attained at least full Senior standing and who have credit for certain subjects named below may offer in satisfaction of all or part of the requirements of the Senior year the entire first year of the medical curriculum. To such students the College will grant the degree of bachelor of arts.

College students who have attained at least full Junior standing and who have credit for certain subjects named below may offer in satisfaction of all or part of the requirements of the Junior and Senior years the entire first and second years of the medical curriculum. To such students the College will grant the degree of bachelor of science in medicine.

The subjects, or equivalents, which must have been completed before admission to the Medical School are:

Modern language, 10 hours.

Chemistry, 10 hours, including at least 2 and 3.

Physics, 1, 5a and 5b.

Biology, which should include zoölogy 3, and at least 5 hours from zoölogy 1, 2, and 57 or botany 3.

To secure this privilege of offering medical work towards the College degree, the student must have spent one full year in residence at the College previous to enrollment in medical courses, and must be certified to the Medical School by the Dean of the College as having met all the requirements above named. He must also register in the College as well as the Medical School and be subject to such general regulations of the College faculty as govern other Juniors and Seniors.

A student who does not fully meet the entrance requirements to the Medical School will enroll in College classes necessary to complete such requirements, after which he may be admitted to the Medical School and enrolled in medical courses, but the aggregate number of hours of such enrollment in the two schools may not exceed that allowed to College students.

Whenever a student has completed the medical work in accordance with the foregoing provisions, the Dean of the Medical School will submit to the Dean of the College a certified statement of that fact, accompanied by the recommendation of the Faculty of the School of Medicine that such student be admitted to the appropriate College degree. The student will then be named to the College Faculty as a candidate for that degree.

It should be noted that several of the courses embraced in the first three semesters of the medical curriculum are offered to College students in the various departments concerned.

MUSIC.*Professor: SKILTON.*

Courses 50 and 51 are College courses and are open to all Juniors and Seniors.

Courses 52 to 60 are courses in the School of Fine Arts and are open to College Juniors and Seniors who do not elect courses from other professional schools, but not more than fifteen hours may be counted towards the degree of bachelor of arts. Students desiring admission to these courses must register in the School of Fine Arts as well as in the College, and will be admitted to the classes as fine arts students.

50.—**APPRECIATION OF MUSIC.** Two hours credit. First semester, at 10. A course for those who wish to learn to understand music as listeners without necessarily being performers. The different styles of music are explained and illustrated, with special reference to the University concerts. Skilton.

51.—**DEVELOPMENT OF MUSIC.** Two hours credit. Second semester, at 10. Detailed examination of famous composers, with reference to the history of their time and country. Skilton.

52.—**HARMONY.** Three hours credit.

53.—**HARMONY.** Three hours credit.

54.—**HARMONY.** Two hours credit.

55.—**HARMONY.** Two hours credit.

56.—**COUNTERPOINT.** Two hours credit.

57.—**COUNTERPOINT.** Two hours credit.

58.—**MUSICAL COMPOSITION.** One hour credit.

59.—**MUSICAL COMPOSITION.** One hour credit.

60.—**INSTRUMENTATION.** One hour credit.

Not to exceed six hours credit in regular courses in piano, organ, violin or voice will be permitted, but such courses must be preceded or accompanied by an equal number of hours in the above theoretical courses.

PHARMACY.

(See Biochemistry.)

PHILOSOPHY AND PSYCHOLOGY.

Professors: TEMPLIN, HOLLANDS (Chairman of Department); HUNTER.

Associate Professor: DOCKERAY.

Assistant Professor: STARK.

EQUIPMENT. This department occupies a suite in the east wing of the Administration Building, including classrooms, a reading room held jointly with the mathematics department, and the psychological laboratory. The department library includes some 3,800 volumes, 3,300 of which are on the shelves of the reading room for ready reference by students. The laboratory has fourteen rooms equipped both for class work and research.

ADVICE CONCERNING CHOICE OF COURSES. PSYCHOLOGY.—Psychology 1a is a prerequisite to all other courses in that subject. Psychology 1b should accompany this course, if possible. In certain advanced courses 1b is a prerequisite.

The following grouping of courses is suggested to meet the needs of special interests among the students:

Business and personnel efficiency interests: Psych. 54, 55, and 56.

Premedical interests: Psych. 2a, 2b, 51, 52, 54, and 55.

General biological interests: Psych. 2a, 2b, 51, 52, and 56.

Social science interests: Psych. 50, 52, 54, 55, and 56.

Educational interests: Psych. 50, 53, 54, 55, 56, and 66.

Purely psychological interests: Psych. 2a, 2b, and 50 offer a preliminary survey of the chief topics of normal human psychology. Psychology 67 should round out the major's work in the Senior year. Psychology 68 and 69 offer the qualified undergraduate an opportunity to work out some problem in research.

PHILOSOPHY.—The systematic courses in philosophy are 74, 75, 80, and 82. These courses, supplemented by 70 and 71, will supply the student of reflective interests with the outline of a general theory of reality and conduct.

Many students will, however, be interested in philosophy principally because of the light it throws upon other subjects. The following suggestions are made to assist such students in their choice of courses:

Interests in scientific method: Philosophy 10, 74, 84.

Interest in a general theory of nature: Philosophy 11, 75.

Social science interests: Philosophy 80, 81, 82.

Historical, literary or scientific interest in the history of ideas: Philosophy 70, 71, 72, 73.

Religious and theological interests: Philosophy 70, 71, 72, 73, 74, 75, 76, 80, 81.

MAJOR REQUIREMENTS. Students majoring in this department may do their work primarily either in psychology or in philosophy. If philosophy is the major interest, at least two psychology courses must be completed. If psychology is the major interest, at least two philosophy courses must be completed. Other elections will be determined by the special interests and purposes of the student.

In satisfying the minimum College requirement of thirty hours in the major group, students may, in exceptional cases, offer a maximum of ten hours credit in courses outside of this group. These outside courses must be approved by an instructor in the major subject, and must be chosen from certain allied subjects in the following departments:

For Psychology—anatomy, education, physics, physiology, sociology, zoölogy.

For Philosophy—English, economics, ancient languages, mathematics, physics, physiology, romance, sociology, zoölogy.

PSYCHOLOGY.

1a.—GENERAL PSYCHOLOGY * Three hours credit. Both semesters, M. W. F., at 10:30 and 3:30. A general survey of the fields of psychology, with a careful study of the field of normal human psychology. It is required for admission to other psychology courses and to the School of Education. Elementary courses in biological and physical sciences are valuable antecedents. It is recommended that 1b accompany this course.

Hunter, Dockeray, Stark.

1b.—GENERAL PSYCHOLOGY LABORATORY.* Two hours credit. Both semesters, M. W., 8:30-10:30 or 1:30-3:30, or at the same hours, Tu. Th. Experiments supplementary to 1a, which must accompany or precede this course.

Dockeray, Stark.

2a.—SENSORY PROCESSES AND FEELING.* Three hours credit. Second semester, 11:30. This is a foundation course and should be taken immediately after 1a and 1b by those planning to major in psychology.

Dockeray.

2b.—SENSORY PROCESSES AND FEELING LABORATORY. Two hours credit. Second semester, Tu. Th., 10:30-12:30. Experiments supplementary to 2a, which must accompany or precede this course.

Dockeray.

50.—ATTENTION, LEARNING, AND THOUGHT. Three hours credit. First semester, 11:30. Laboratory work by appointment will occupy about one-

third of the course. Courses 1b, 2a, and 2b are recommended as antecedents. Hunter.

51.—ANIMAL BEHAVIOR. Three hours credit. First semester, 9:30. Vertebrate behavior is emphasized. The topics discussed are: Tropisms, instincts, sensory discrimination, and higher capacities. Laboratory work by appointment will occupy about one-third of the course. Hunter.

52.—ABNORMAL PSYCHOLOGY. Three hours credit. Second semester, 9:30. A study of defense mechanisms in both the normal and the abnormal. Particular attention will also be given to hysteria and disintegrated personality. Dockeray.

53.—CHILD PSYCHOLOGY. Two hours credit. First semester, 8:30. The mental development of the child in the preadolescent period. Dockeray.

54.—INDIVIDUAL PSYCHOLOGY. Three hours credit. First semester, 8:30. The analysis of mental tests and a study of their application to problems of "general intelligence," sex differences, special defects, vocational aptitudes, and the relation between individual differences and social status. Laboratory work by appointment will occupy about one-third of the course. Prerequisite, course 1b. Stark.

55.—SOCIAL PSYCHOLOGY. Three hours credit. Second semester, 9:30. Social instincts and emotions, the psychology of social influence, and the self. Given in alternate years with course 56. (Not given in 1920-'21.) Hunter.

56.—INSTINCT AND EMOTION. Three hours credit. Second semester, 9:30. An examination of the fundamental modes of acting and feeling. Given in alternate years with course 55. (Given in 1920-'21.) Hunter.

66.—ADVANCED PSYCHOLOGY OF LEARNING. Two hours credit. Second semester, by appointment. A study of the literature and experiments of memory and habit formation. A few typical experiments will be performed. Prerequisites, courses 1b, 2a, and 50. Hunter.

67.—PRINCIPLES OF PSYCHOLOGY. Three hours credit. Second semester, at 11:30. A consideration of the history and problems of psychology. Prerequisites, courses 1a, 1b, and six other hours of psychology. Hunter.

68.—ADVANCED PSYCHOLOGY I. Two to five hours credit. First semester, by appointment. This course provides for the individual or group study of special topics by advanced students. The subject will be determined by the desires of the students. Hunter, Dockeray, Stark.

69.—ADVANCED PSYCHOLOGY II. Two to five hours credit. Second semester, by appointment. A continuation of course 68, but not necessarily preceded by it. Hunter, Dockeray, Stark.

PHILOSOPHY.

10A.—ELEMENTARY LOGIC.* Two hours credit. Both semesters, at 9:30. A beginning course in the processes of reason when engaged in the search for truth, the testing of assertion, or the demonstration of fact. Welton's "Groundwork of Logic" is used as a text, but the chief purpose of the course is to provide the student with practical drill in accurate thinking. Templin.

10B.—ELEMENTARY LOGIC.* Three hours credit. Both semesters, at 9:30. The same as the foregoing, course 10A, with the additional hour devoted to a more detailed study of the methods employed in scientific investigation. This course is designed especially for students of science. Templin.

11.—INTRODUCTION TO PHILOSOPHY.* Two hours credit. Both semesters, at 10:30. Brief course for beginners, presenting the general nature

of philosophical problems and of the relation of philosophy to science, religion and art. Should be preceded by elementary courses in the biological and physical sciences. Hollards.

70.—HISTORY OF PHILOSOPHY I. Three hours credit. First semester, at 9:30 and 10:30. The development of philosophy, its relations to general culture, scientific theory, education, politics, and religion. The work of the first term will ordinarily cover ancient philosophy from Thales to Plotinus, with special reference to Plato and Aristotle. This course has no prerequisites in the department, but is a natural sequel to the Sophomore courses. Hollards.

71.—HISTORY OF PHILOSOPHY II. Three hours credit. Second semester, at 10:30. A continuation of course 70. Mediæval and modern philosophy, from St. Augustine to the present. Hollards.

72.—PHILOSOPHICAL CLASSICS I. Two hours credit. First semester, by appointment. This course furnishes an opportunity for the study of some of the works important in the history of philosophy. The authors read vary with succeeding terms. Must be preceded or accompanied by course 70, which it is intended to supplement. Hollards.

73.—PHILOSOPHICAL CLASSICS II. Two hours credit. Second semester, by appointment. A continuation of course 72. Must be accompanied or preceded by course 71, which it supplements. Hollards.

74.—THE THEORY OF KNOWLEDGE. Three hours credit. First semester, at 11:30. The subject of the course is the problem of truth, with special reference to contemporary idealism, pragmatism, and realism. Prerequisite, elementary courses in logic, psychology, and philosophy. Hollards.

75.—METAPHYSICS. Three hours credit. Second semester, at 11:30. Some typical tendencies and problems of contemporary thought will be examined and discussed in connection with the positive development of a theory of reality. Prerequisite, course 74. (Given in 1920-21.) Hollards.

76.—THE PHILOSOPHY OF RELIGION. Two hours credit. Second semester, at 11:30. After a preliminary examination of some of the theories concerning the origin and development of religion, in connection with the anthropological and psychological data, this course will consider some of the problems common to religion and philosophy. Prerequisites, courses 1a, and either 11, 70 or 71. (Not given in 1920-21.) Hollards.

80.—SYSTEMATIC ETHICS. Three hours credit. First semester, at 10:30. This course undertakes a critical examination into the psychological foundations of human conduct, a review of the historic ethical theories, and the development of a satisfactory ethical system. Should be preceded by elementary courses in psychology, logic, and philosophy. Templin.

81.—PRACTICAL ETHICS. Two hours credit. Second semester, by appointment. The application of theoretical principles of conduct to practical problems of life. Prerequisite, course 80. Templin.

82.—PHILOSOPHY OF THE STATE. Three hours credit. Second semester, at 10:30. The nature, origin, composition, and diverse forms of the state. Its scope, purpose, and authority. Influences affecting political evolution. The state as related to other human groups and to other states. Political conditions and tendencies. Political phenomena as manifestations of natural law. Templin.

83.—ESTHETICS. Two hours credit. Second semester, at 10:30. A psychological and philosophical analysis of the beautiful and the comic. Prerequisite, course 1a. Should be preceded by several hours of psychology and some study of philosophy. Templin.

84.—ADVANCED LOGIC. Two hours credit. First semester, at 10:30. A continuation of the elementary courses in logic, by one of which it must be preceded. An examination of the methods followed by scientists in making some of their greatest discoveries will constitute a large part of the course.

Templin.

PHYSICAL EDUCATION.

Professor: NAISMITH* (Head of Department).

Associate Professor: BACON.

Instructors: PRATT, STEGER, STANLEY, BELL.

ADVICE AS TO CHOICE OF COURSES. The courses listed as exercises are designated primarily to secure health, recreation, and physical skill.

Course 20 is intended to teach the best methods of keeping the body at its highest efficiency, and of caring for it in emergencies.

Courses 50-58 are designed for the training of those who wish to become physical directors, coaches, managers, or any combination of these. Those looking forward to this work should take, in their Freshman and Sophomore years, at least one course in each of the following: anatomy, physiology, physics, chemistry, and psychology.

All Freshmen are required to take some form of exercise at least three times, and Sophomores twice, per week. An election from the listed courses is permitted according to the needs and wishes of the student.

A physical and medical examination is given to every student on entrance, and is used to determine the kind and amount of exercise best adapted for the individual. Abnormalities and conditions which affect the efficiency of the student will be pointed out; and, in so far as possible, he will be assisted in removing them.

Communications from parents or family physicians regarding the health of the student will be welcomed and will be of material assistance in directing his activities.

COURSES OF EXERCISE FOR MEN.

Exercise 1 and 2 are required of all Freshmen. Exercise 3 and 4 are required of all Sophomores. Exercise 5 to 10 are open, without credit, to College students, or may, by the direction of the instructor, constitute parts of the preceding exercises.

EXERCISE 1.** First semester, M. W. F., at 10:30, 11:30, 2:30, 3:30, 4:30. First half: recreative games and sports. Second half calisthenics, apparatus, and swimming.

EXERCISE 2.** Second semester, M. W. F., at 10:30, 11:30, 2:30, 3:30, 4:30. First half: apparatus, swimming, and indoor games. Second half: outdoor games, track and field sports, and advanced swimming.

EXERCISE 3. First semester, Tu. Th., 11:30, 2:30, 3:30. Advanced calisthenics and apparatus work, squad leading, exhibition gymnastics, and rescue swimming. Required of Sophomores.

EXERCISE 4. Second semester, Tu. Th., at 11:30, 2:30, 3:30. Defensive sports, aquatics, squad leading, and advanced gymnastics. Required of Sophomores.

EXERCISE 5. First half first semester, daily, at 3:30. Freshman football.

EXERCISE 6. First half of first semester, daily, at 3:30. Varsity and class football, to which Sophomores are eligible.

EXERCISE 7. Second half of first semester, daily, at 7 p.m. Basketball, Freshman and varsity, to which Sophomores are eligible.

EXERCISE 8. First semester, daily, at 3:30. Track, Freshman and varsity, to which Sophomores are eligible.

EXERCISE 9. Second semester, daily, at 3:30. Continuation of course 8.

* Absent on leave.

EXERCISE 10. Second semester, daily, at 2:30. Baseball, Freshman and varsity, to which Sophomores are eligible.

COURSES OF EXERCISE FOR WOMEN.

Students will not be permitted to engage in strenuous exercises that are beyond their development or that are likely to injure them, but will be encouraged to take part in the games that are adapted to benefit them.

Students not strong enough to take the regular class work will be given work of such a nature as to meet their special needs.

A regulation gymnasium costume is required, which may be purchased after reaching the University. Gymnasium shoes with leather soles must be worn in the gymnasium, and may be purchased in Lawrence. The dressing rooms are provided with ventilated steel lockers, shower baths, and hair dryers. There is a woman attendant.

Advanced students may elect any of the forms of exercise in which they are particularly interested.

EXERCISE 1.** First semester, M. W. F., at 10:30, 11:30, 2:30, 3:30. Calisthenics, wands, dumb-bells, pulley weights, elastic exercises, folk dances and gymnastic games.

EXERCISES 2.** Second semester, M. W. F., at 10:30, 11:30, 2:30, 3:30. Continuation of course 1. Prerequisite, course 1, or its equivalent.

EXERCISE 3. First semester, Tu. Th., 11:30, 2:30, 3:30. Swedish gymnastics, folk dancing, esthetic and rhythmical exercises; Indian clubs. Prerequisite, course 2. Required of Sophomores.

EXERCISE 4. Second semester, Tu. Th., at 11:30, 2:30. A continuation of course 3. Prerequisite, course 3. Required of Sophomores.

EXERCISE 5. First semester, Tu. Th., at 3:30. Advanced gymnastics, esthetic dancing, Swedish work, and games. Prerequisites, courses 1 to 4, or their equivalents.

EXERCISE 6. Second semester, Tu. Th., at 3:30. A continuation of course 5.

EXERCISE 7. Both semesters, daily at 11:30 or 2:30. Corrective gymnastics, arranged for those students who need special forms of exercise for correction of bodily defects.

SWIMMING The swimming pool is used by the women students on Monday and Thursday from 10:30 to 12:30, 2:30 to 5:30. All students are advised to learn to swim.

BASKET-BALL. Regular practice is held, but organized teams may play at any time when the floor is unoccupied. Interclass games will be held at the regular hour.

TENNIS. There are five courts on South Field reserved for the women students.

FIELD HOCKEY. On Friday the classes in exercises 2 and 3 may substitute hockey for regular work. Class and other teams may be organized, and have regular hours for practice on South Field. Hockey sticks and balls are provided by the University.

Volley ball, indoor baseball, and other games may be played whenever the field is unoccupied and when groups of students select a time.

HYGIENE.

20.—HYGIENE.** Required of all Freshmen, men and women. Weekly lecture, first semester, at one of the following periods: Men: M., 4:30; Tu., 11:30; W., 1:30; Women: W., 10:30, 4:30; Th., 11:30, 4:30.

Naismith, Gøtz.

CREDIT COURSES.

50.—KINESIOLOGY. Three hours credit. First semester, 8:30 to 10:30. A study of the human body as a mechanism; the muscles demanded and

developed by exercise; muscles required in different forms of athletics; corrective exercises; massage. Prerequisite, elementary anatomy.

Naismith.

51.—PHYSIOLOGY OF EXERCISE. Two hours credit. Second semester, 9:30, 11:20. A study of the effects of exercise on the various systems of the body; effect of strain; feats of endurance; hygienic and recreative exercises; methods of development. Should be preceded by physiology I or II.

Naismith.

52.—ANTHROPOMETRY. Two hours credit. Second semester, 8:30. Physical, functional, and medical examination; tabulation and the use of the data of examination; the making of charts and diagrams and their use. Should be preceded by anatomy I and physiology I or II.

Naismith.

55.—PRINCIPLES OF GYMNASICS I. Two hours credit. First semester, Tu. Th., 9:30. A study of the systems of physical education—German, Swedish, French, and English. The development of modern gymnastics and their application to school and colleges; analysis of exercises and drills. Prerequisite, Freshmen and Sophomore courses or their equivalent.

56.—PRINCIPLES OF GYMNASICS II. Two hours credit. Second semester, M. W. F., 9:30. A continuation of course 55.

57.—PRINCIPLES OF RECREATIVE SPORTS I. Two hours credit. First semester, Tu. Th., 10:30. A study of festivals and games, ancient and modern; their place and value; their classification. Methods of conducting recreative games, sports, and play festivals; playground technic.

Pratt.

58.—PRINCIPLES OF RECREATIVE SPORTS II. Two hours credit. Second semester, Tu. Th., 10:30. A continuation of course 57.

Pratt.

59.—PHYSICAL DEVELOPMENT OF THE CHILD. Three hours credit. Second semester M. W. F., 8:30. A study of the influence of heredity, nutrition, rest, exercise, training, curve of growth, effects of development and habits and character.

Naismith.

PHYSICS AND ASTRONOMY.

Professor: KESTER.

Associate Professors: RICE, ALTER.

Assistant Professor: STIMPSON.

Instructors: WARNER, BROWN.

EQUIPMENT. The department occupies Blake Hall. The lecture rooms, laboratory and research rooms of the building are well supplied with water and gas and with various electrical circuits; the laboratory and research rooms are provided with piers free from vibration. A well-equipped shop and the services of an instrument maker are available for the construction of apparatus needed for special work. The equipment of apparatus for demonstration and regular laboratory work and for special investigation is good and is being increased constantly by well-chosen additions.

The physics library contains a fine collection of standard treatises, both elementary and advanced. American, English, German, French, and Italian journals of the science are at hand, with bound volumes back twenty-five to forty years; the files of the more important journals have been extended back from seventy to ninety years. The published transactions and proceedings of a large number of the important physical societies of the world add notably to the value of the library for use in special fields of investigation.

The material equipment in astronomy consists of a six-inch telescope, made by Alvin Clark & Sons, with equatorial clock-drive and a micrometer eye-piece; a two-inch terrestrial telescope on a portable altazi-

moth mounting; one two-inch and one three-inch transit instrument; a sextant; a spectroscope for attachment to the six-inch telescope; a fine comparator for photographic plate measurements; two chronometers, one a break-circuit instrument; two chronographs; a twenty-inch celestial globe; 600 astronomical slides; star charts, atlases, maps, drawings, etc. In addition, the equipment in physics is available for demonstrations and for laboratory work. A temporary observatory, with class rooms, and additional apparatus was added in 1919.

The astronomical library is unusually complete, containing complete sets of *The Astronomical Journal*, *The Observatory*, *Monthly Notices*, *Popular Astronomy*, *Astrophysical Journal*, and most of the volumes of *Bulletin Astronomique*, and *Astronomische Nachrichten*.

ADVICE AS TO CHOICE OF COURSES. *Physics.*—The courses in physics are arranged to give, first, a general survey of the whole subject in the elementary and general courses (2, and 3 and 4); second, a more intensive study of the well-defined fundamental parts of the science in the courses 50 to 53 (with appropriate laboratory courses 55 to 57); and third, an opportunity to enter the more special fields in the courses 58 to 61. Courses 3 and 4 (general physics), or their equivalents, are necessary for enrollment in any other course in physics. They are open to all students of the College. Courses 50 to 65 are open to Juniors and Seniors and to graduate students. Courses 50, 51, 52, and 53, with accompanying laboratory courses, should all be taken by students making physics their major, and courses 58, 60, and 61 may be added. Courses 53, 58 and 60 do not presuppose the calculus. Students expecting to do advanced work in physics should obtain as early as practicable a working knowledge of the calculus. A reading knowledge of German and French is desirable for those who elect the advanced courses and is essential for graduate students. Members of the department are glad to confer with students who intend to major in physics, and with those who intend to teach this science in high schools, as to the choice of courses best adapted to their needs.

Astronomy.—Students wishing only a general knowledge of the subject are advised to take only astronomy 10, 11, and 83. The other courses are designed for students majoring in astronomy, other physical sciences or mathematics.

PHYSICS.

2.—THE DEVELOPMENT OF PHYSICS, INCLUDING RECENT ADVANCES. Five hours credit. First semester, M. W. F., 8:30 to 10:20; Tu. Th., 9:30; lectures, recitations, and laboratory work. A topical survey, the arrangement of topics such as to trace the development of methods and the growth of fundamental ideas. Considerable attention will be given to recent tendencies. (The course does not duplicate high-school physics. It may not be counted in fulfillment of entrance requirements of the School of Medicine.) Prerequisite, plane geometry. Laboratory fee, \$1.

Kester.

3a.—COLLEGE PHYSICS. Mechanics, sound, and heat. Three hours credit. First semester, at 9:30. Lectures and recitations. Prerequisites, elementary physics, or elementary chemistry, and plane trigonometry. Course 3a should be accompanied by 4a.

Kester.

3b.—COLLEGE PHYSICS. Light and electricity. Three hours credit. Second semester, at 9:30. A continuation of course 3a. Prerequisite, course 3a. Course 3b should be accompanied by 4b.

Kester.

4a.—COLLEGE PHYSICS LABORATORY. Mechanics, sound, and heat. Two hours credit. First semester, Tu., 8:30 to 10:20; Th., 8:30 to 10:20. Accompanied by or preceded by 3a. Fee, \$1.50.

Stimpson.

4b.—COLLEGE PHYSICS LABORATORY. Light and electricity. Two hours credit. Second semester, Tu., 8:30 to 10:20; Th., 8:30 to 10:20. Coörr-

minate with 3b, with the same prerequisites. Course 4b must be accompanied or preceded by 3b. Fee, \$1.50. Stimpson.

5a.—PHYSICS FOR MEDICAL STUDENTS. Mechanics, sound and heat. Four hours credit. First semester. Recitations, M. W. F., at 8:30 or 9:30; laboratory, Tu., 1:30 to 3:20, or 3:30 to 5:20, or Th., 1:30 to 3:20, or 3:30 to 5:20. Prerequisites, elementary physics or elementary chemistry and some knowledge of trigonometry. Laboratory fee, \$1.

6a.—PHYSICS FOR MEDICAL STUDENTS. Light and electricity. Four hours credit. Second semester. Recitations, Tu. Th., at 8:30 or 9:30; laboratory, Tu., 1:30 to 5:20, or Th., 1:30 to 5:20, or S., 8:30 to 12:20. A continuation of course 5a. Prerequisite, Physics 5a, or its equivalent. Laboratory fee, \$1.50.

50.—MECHANICS AND HEAT. Three hours credit. First semester, at 8:30. Lectures and recitations. Prerequisites, a year's work in general physics, and calculus. Kester.

It is recommended that this course be followed by mathematics 50, analytical mechanics, three hours, second semester.

51.—LIGHT AND RADIANT ENERGY. Three hours credit. Second semester, at 8:30. Prerequisites, a year's work in general physics, and calculus. Offered in alternate years. (Not offered in 1920-21.) Rice.

52.—ELECTRICITY. Three hours credit. First semester, at 9:30. Lectures, recitations, and problems. Prerequisites, a year's work in general physics, and calculus. Rice.

53.—CONDUCTION OF ELECTRICITY THROUGH GASES. Three hours credit. Second semester, at 9:30. Prerequisite, a year's work in general physics. Offered in alternate years. Kester.

Courses 50, 51, 52, and 53 are designed to form a two-year cycle for theoretical treatment of the essentials of the subject matter of physics. The cycle is offered especially for Juniors and Seniors who are taking their major in physics. Either year of it is acceptable as a minor for graduate students who are working for the master's degree with their major in another department. An opportunity is offered in the laboratory courses 55 to 57 for experimental work which shall supplement to any desired extent the theoretical development of a given branch of the subject.

54.—PRINCIPLES OF ELECTRIC WAVE TELEGRAPHY. Three hours credit. First semester, by appointment. A study of the fundamentals of wireless telegraphy. Prerequisite, a course in general physics. Some use is also made of calculus. Warner.

55.—PHYSICAL LABORATORY. Light and radiant energy. Two to five hours credit. Second semester, by appointment. Prerequisite, a year's work in general physics. Fee, \$1.50 to \$3. Rice.

56.—PHYSICS LABORATORY. Electricity. Two to five hours credit. Both semesters, by appointment. Prerequisite, a year's work in general physics. Fee, \$1.50 to \$3. Rice.

57.—PHYSICS LABORATORY. Conduction of electricity through gases, and radioactivity. Two or three hours credit. Second semester, by appointment. Prerequisite, course 53 or equivalent. Fee, \$1.50 or \$2. Kester.

Courses 54, 55, 56, 57 are coördinate with 50, 51, 52, 53, with the same prerequisites, and supplement them from an experimental point of view.

58.—TEMPERATURE CONTROL AND MEASUREMENT. Three hours credit. Second semester, Tu., at 8:30; Th., 8:30 to 10:20; S., 8:30 to 11:30. This course will treat the subjects of the maintenance of constant temperatures, high and low; the various methods of measuring temperatures and of standardizing instruments, such as the platinum resistance thermometer, the thermo-electric couple, the pyrometer. Offered in alternate years. (Not offered in 1920-'21.) Fee, \$2. Kester.

59.—ELECTRIC WAVE TELEGRAPHY LABORATORY. Two to four hours credit. First semester, by appointment. Must be preceded by or accompany course 54. An experimental study of the production of oscillations, measurement of the quantities involved and methods of reception in wireless telegraphy. Warner.

60.—OPTICAL INSTRUMENTS. Three hours credit. Second semester, at 8:30. This course is coördinate with 51, treating the theory of light only in so far as it relates to applied optics. Offered in alternate years. Rice.

61.—ALTERNATING AND OSCILLATING CURRENTS. Three hours credit. Second semester, by appointment. Lectures, recitations, and problems. A continuation of course 52, dealing with the mathematical theory of alternating and oscillating currents and the propagation of varying electric currents in wires. Prerequisites, course 52 and some work in course 56, or equivalent, and a good working knowledge of calculus. Offered in alternate years. (Not offered in 1920-'21.) Rice.

63a.—PHYSICS COLLOQUIUM. One hour credit. First semester, by appointment. The members and the advanced students of the department meet once a week to report on researches published in the journals of the science and on the progress of original investigations carried on by members of the colloquium. Staff.

63b.—PHYSICS COLLOQUIUM. One hour credit. Second semester, by appointment. A continuation of course 63a. Staff.

65.—ELEMENTARY ACOUSTICS. One hour credit. Second semester, by appointment. A course of twenty lectures, with demonstrations, upon the scientific basis of harmony. Given in alternate years. Stimpson.

ASTRONOMY.

10.—DESCRIPTIVE ASTRONOMY. Four hours credit. Both semesters, at 9:30, M. W. F; recitation sections one hour, by appointment. An elementary course serving as an introduction to the subject. Alter.

11.—OBSERVATIONAL ASTRONOMY. Two hours credit. Both semesters. Stress is laid on methods which may be carried on without the aid of large instruments, and which can be continued by the student independently. Astronomy 10 must accompany or precede this course, which is the laboratory part of descriptive astronomy. One evening and one afternoon a week. Alter.

82.—SPHERICAL AND PRACTICAL ASTRONOMY. Three hours credit. Through the year, by appointment. Transformation of coördinates, time, sextant, transit, refraction. Prerequisites, descriptive astronomy and trigonometry. Alter.

83.—HISTORY OF ASTRONOMY. Three hours credit. First semester, by appointment. A lecture course in which the material is drawn from various sources. Lantern slides will be used freely. Alter.

84.—INTRODUCTION TO ASTROPHYSICS. Three hours credit. Second semester, by appointment. A study of the principles, methods and instruments employed in investigating the physical conditions of celestial bodies. Prerequisites, descriptive astronomy and a year's work in general physics. Alter.

85.—METHOD OF LEAST SQUARES. Three hours credit. First semester, by appointment. A study of the theory of errors and of the accuracy of observations. Alter.

86.—THEORY AND PRACTICE OF INTERPOLATION. Three hours credit. Second semester, by appointment. Practical work in mechanical differentiation and integration, especially applied to the computation of physical problems which are otherwise very difficult. Alter.

87.—THEORETICAL ASTRONOMY. Five hours credit. Both semesters, by appointment. This course will involve a great deal of computation.
Alter.

88.—VECTOR ANALYSIS. Three hours credit. First semester, by appointment. The study of directed quantities, of the algebra concerned, and of the applications to physical problems.
Alter.

89.—VECTORIAL MECHANICS. Three hours credit. Second semester, by appointment.
Alter.

PHYSIOLOGY.

Professor: STOLAND (Chairman of Department).

Assistant Professor: REED.

Instructor: WALLING.

Demonstrator: ISENBERGER.

Assistant Instructors: KORB, SMITH.

EQUIPMENT. The department occupies the second floor of the Journalism Building, one room in Fraser Hall, and laboratory and office rooms on the second floor of Snow Hall. The laboratory and research rooms are well equipped with suitable tables and supplied with water and gas. The equipment of apparatus, glassware, and chemicals is adequate for ordinary demonstrations and laboratory work in general physiology, and for some lines of research. The department library contains the more important reference books and complete files of the leading physiological journals.

ADVICE AS TO CHOICE OF COURSES. Physiology 1 and 2 cover the field of physiology in an elementary way, and are intended for students who are not prepared to pursue advanced courses in physiology, but desire some knowledge of the subject. Course 1 includes such topics as are most desirable for those who do not care to take more than one course in physiology. Students who are making the biological sciences their major study and are prepared in chemistry and physics are advised to select their work from courses 50, 51, 52, 53, 61, 70 and 71. Students who wish to make physiology their major study should have had physics, chemistry (including elementary organic chemistry), zoölogy, and either comparative anatomy or human anatomy. The required number of hours may be selected from courses 50, 51, 52, 53, 61, 62, 63, 70 and 71.

Fees will be charged in the various courses to cover the cost of materials used.

1.—ELEMENTARY PHYSIOLOGY. Five hours credit. Both semesters. Recitations, M. W. F., at 9:30, 10:30, or 1:30. Laboratory, Tu. Th., 8:30 to 10:30, 10:30 to 12:30, or 1:30 to 3:30. A course dealing especially with the nourishment of the body. It will include a study of the properties of living matter, the foods and their digestion and absorption, the functions of blood, the organs of circulation and their activities, breathing and respiration, metabolism and excretion. Biology, chemistry, and physics are highly desirable antecedents to the course.

Walling, Reed, Stoland, Korb, Smith.

2.—ELEMENTARY PHYSIOLOGY. Five hours credit. Second semester. Recitations, M. W. F., at 1:30. Laboratory, Tu. Th., 10:30 to 12:30. A continuation of course 1. It includes a study of muscles, heat regulation, nerve, reflexes, brain, special senses, and the glands of internal secretion.

Reed, Walling, Isenberger.

50.—PHYSIOLOGY OF THE MECHANISMS OF NUTRITION. Five hours credit. First semester. Lectures and recitations, M. W. F., 9:30. Laboratory, four hours by appointment. A course intended for students who have had some preparation in chemistry and biology. Not open to students who have had physiology 1.

Stoland.

51.—PHYSIOLOGY OF MOVEMENT AND SENSATION. Five hours credit. Second semester. Lectures and recitations, M. W. F., at 9:30. Labora-

tory, four hours by appointment. A course dealing with the physiology of muscle and nerve, the central nervous system and special senses. General physics and a course on the structure of the nervous system are highly desirable antecedents. Not open to students who have had physiology 2. Stoland.

52.—HYGIENE. Three hours credit. First semester. A course designed to meet the needs of all students interested in hygiene from the standpoint of general education. In addition certain topics will receive special consideration in the interests of prospective teachers and public health workers, such as child welfare, school hygiene, housing and community welfare and vocational features. Prerequisites, chemistry and some biological science. Open to Sophomores having the proper prerequisites. Reed.

53.—INDUSTRIAL HYGIENE. Two hours credit. Second semester. An advanced course for sanitary engineering students and those primarily interested in industrial welfare work. Also open to medical students. Prerequisites, chemistry and bacteriology. Course includes didactic work, demonstrations and field trips covering industrial health hazards, fatigue, infections, dust, humidity temperature, illumination, natural and artificial industrial poisons, stimulantism, and the relation of these to actual conditions to sanitary and other equipment, control and elimination, welfare organization (safety and medical), female and child labor. Demonstrations will include the use of some precise instruments. Field trips may possibly be arranged to some of the larger industrial plants where these various features have been developed to the highest degree. Reed.

61.—EXPERIMENTAL PHYSIOLOGY. Three hours credit. Both semesters. Two laboratory periods and one hour conference per week, by appointment. A course intended to familiarize the students of physiology with the laboratory experiments on mammals and other animals. Prerequisite, any previous course in physiology. Reed.

62.—PHYSIOLOGY OF THE ORGANS OF INTERNAL SECRETION. Three to five hours credit. Second semester. Hours by appointment. A course which includes a study of the organs of internal secretion and their relations to the body activities. Lectures, demonstrations, and laboratory work. Prerequisites, courses 1 and 2, or any advanced course in physiology. Stoland.

63.—SPECIAL PROBLEMS IN PHYSIOLOGY. Two to seven hours credit. Both semesters. Hours by appointment. A course intended for students who wish to pursue special laboratory work or investigation, either independently or in conjunction with members of the staff.

Stoland, Reed.

70.—MEDICAL PHYSIOLOGY I. Five hours credit. Second semester. Lectures and recitations, M. W. F., 1:30; laboratory, Tu. Th., 1:30 to 4:30. The physiology of blood, circulation, respiration, muscle and nerve. This course is intended especially for medical students, but is open to college students who have the proper preparation. Stoland, Reed, Isenberger.

71.—MEDICAL PHYSIOLOGY II. Five hours credit. First semester. Lectures and recitations, M. W. F., at 8:30; laboratory, Tu. Th., 8:30 to 11:30. The physiology of the central nervous system, the senses, the digestive tract, secretion, metabolism, excretion, heat regulation, internal secretions. A continuation of course 70. Stoland, Reed, Isenberger.

PUBLIC SPEAKING.

Professor: MACMURRAY (Head of Department).

Instructor: SHINN.

EQUIPMENT. The special equipment of this department includes a collection of more than 200 books, to which carefully selected modern works dealing with debating and public addresses are added yearly. Through the courtesy of the Dean of the School of Law, rooms in Green Hall have

been especially fitted for the work in public speaking, and the University chapel and other rooms are available for class recitations and individual practice. Moreover, the students in this department are urged to make constant use of books in the English, history, political science, economics, sociology, education, and other collections, as well as of the various current periodicals.

ADVICE AS TO CHOICE OF COURSES. The courses here offered are carefully articulated units, and are so arranged as to make possible a systematic study of public speaking. Students fitting themselves for the law or the ministry, for politics or social service, are urged to elect the entire series of courses offered. The University of Kansas participates in debates with the Universities of Oklahoma, Colorado, and Missouri. For these contests the courses in public speaking are designed to give preparation. Men desiring to win places on intercollegiate debating teams are advised to take as much of the work as possible, but especially to take courses 5 and 6. The course in the principles of argumentation formerly given by this department has been transferred to the department of English, and may now be taken as course 3 in rhetoric. While it is not made a prerequisite, it is strongly advised as a preparation to course 5 in debating. In fact, students who have not had the course in argumentation must be able to satisfy this department in some other way of their preparation for course 5 in debating.

To facilitate the work of the courses in dramatic art, a small but neat and practical stage has been fitted up in room 3, Green Hall. In addition to the regular class work the rehearsals for class and dramatic club plays are held in this room.

1.—**ORAL INTERPRETATION I.*** Two hours credit. Both semesters. First semester, two sections, Tu. Th., at 8; Tu. Th., at 10. The purpose of this course is to enable the student to attain to some proficiency in the art of oral interpretation of literature. In connection with the practice work upon the platform, the student will be given such points of theory as are necessary in regard to the development and use of the voice and in regard to proper platform deportment. MacMurray, Shinn.

2.—**ORAL INTERPRETATION II.*** Two hours credit. Both semesters. Tu. Th., at 9, M. W., at 8. This course will be a continuation of course 1, and will afford a more advanced study of the art of oral interpretation. Prerequisite, course 1. MacMurray, Shinn.

5.—**DEBATING I.** Two hours credit. First semester, two sections; M., 3 to 5; Tu., 3 to 5. Practical work in brief drawing and the handling of evidence, together with presentation in actual debate. It is recommended that course 3 in rhetoric be taken before or in connection with this course. Shinn.

6.—**DEBATING II.** Two hours credit. Second semester, by appointment. This course is a continuation of course 5, and affords an opportunity for more advanced and intensive study of debating methods. Prerequisite, course 5. Shinn.

50.—**EXTEMPORE SPEAKING I.** Two hours credit. Both semesters. First semester, two sections; Tu. Th., at 10; Tu. Th., at 2. Weekly addresses based on prepared outlines. Careful preparation of material is required; the plan of speech is made in advance, but the choice of language is left for the moment of speaking. MacMurray, Shinn.

51.—**EXTEMPORE SPEAKING II.** Two hours credit. Both semesters. Tu. Th., at 11. A continuation of extempore speaking I; same methods, but work is of more advanced nature. Lectures by head of department, and attention given to solution of special problems in public speaking. Prerequisite, course 50. MacMurray or Shinn.

54.—**ADVANCED PUBLIC SPEAKING.** Two hours credit. First semester, Tu. Th., at 11. In addition to the regular class instruction, special instruction will be given in preparing lectures and recitals for the public

platform. A carefully prepared production of some length will be required of each student by the end of the semester. Prerequisites, courses 1 and 2. MacMurray.

60.—DRAMATIC ART I. Two hours credit. First semester, M., 3 to 5. Training in the interpretation of the drama and instruction in stage technique. Standard and classic plays will be studied and presented, and each student will be assigned definite roles to interpret. MacMurray.

61.—DRAMATIC ART II. Two hours credit. Second semester, M., 3 to 5. A continuation of course 60. The work will be similar in character but of a more advanced nature. Prerequisite, course 60. MacMurray.

ROMANCE LANGUAGES AND LITERATURES.

Professor: GALLOO (Head of Department).

Associate Professor: NEUEN SCHWANDER.

Assistant Professors: STANTON, MAHIEU.

Instructors: CRAM, HESS, PERRY, CATE, CARMAN,
SWANSON, SNYDER,* TOWNE.†

EQUIPMENT. The department of Romance languages and literatures possesses a collection of illustrative material consisting of several hundred photographs, stereopticon slides, maps, plans, plaster casts, etc., illustrating the history, architecture, life, and general culture of the Romance nations.

The Romance library of the University contains 4,050 volumes, which cover in a representative way the literary development of France, Italy, and minor Romance languages and dialects, from the earliest times to the present day. Twenty-seven periodicals are received, which include all the important literary and philological journals devoted to the Romance languages.

ADVICE AS TO CHOICE OF COURSES. Students who wish to take a major in this field, should consult with the department before the end of their Sophomore year.

A major in French includes, as prescribed work, courses 3, 4, 6, 7, 12, 53, 54 and six hours of French literature or linguistics, with additional courses to be suggested with a view to the vocations for which the students are fitting themselves.

Students intending to teach French should take, in addition to the required work in education, course 10 or course 11 in oral composition.

All students whose major is in French are advised to elect courses in Spanish and Italian, in mediæval and modern European history, and in the history of English literature. For a major in French and Italian, courses 21, 22, 23, 24, 26, and 80 are substituted for courses in French according to the preparations and needs of the students.

Graduate work in this department presupposes a fair acquaintance with Latin, with elementary Spanish and Italian, and a reading knowledge of German.

FRENCH.

1.—ELEMENTARY FRENCH. Five hours credit. First semester, at 8:30, 9:30, 10:30, 11:30, and 1:30; second semester, at 8:30, 9:30, 10:30, 11:30, and 2:30. Grammar (Fraser and Squair) and easy reading. Drill in pronunciation and speaking; elementary syntax.

Neuen Schwander, Mahieu, Cram, Hess, Perry, Cate,
Carman, Swanson, Towne.

2.—FRENCH READING AND GRAMMAR. Five hours credit. Second semester, at 8:30, 9:30, 10:30, 11:30, and 1:30; first semester, at 8:30, 9:30, 10:30, 11:30, and 2:30. Reading of simple prose texts; dictation; speaking; elementary composition. Prerequisite, course 1.

Neuen Schwander, Stanton, Cram, Hess, Perry, Cate,
Carman, Swanson, Towne.

* First semester.

† Second semester.

3.—MODERN FRENCH WRITERS. Three hours credit. Both semesters, 8:30, 9:30, 11:30, and 1:30. Translation and reading of works of Mérimée, George Sand, Victor Hugo, Anatole France, and René Bazin. Prerequisite, course 2. Neuen Schwander, Stanton, Mahieu, Perry, Cate.

4.—FRENCH COMPOSITION. Two hours credit. Both semesters, at 8:30, 9:30, 11:30, and 1:30. Written exercises for grammatical review; free composition; oral exercises; dictation. Must be preceded or accompanied by course 3. Stanton, Mahieu, Perry, Cate.

5.—SCIENTIFIC FRENCH. Three hours credit. First semester, by appointment. Open to students who are specializing in the sciences and who need an accurate and ready understanding of scientific French. Prerequisites, courses 1 and 2. Carman.

6.—FRENCH PROSE AND POETRY. Three hours credit. Both semesters, at 8:30 and 10:30. Reading of representative works of the seventeenth, eighteenth and nineteenth centuries. Prerequisites, courses 3 and 4; may be taken in the same semester as course 4. Neuen Schwander, Hess.

7.—FRENCH COMPOSITION. Two hours credit. Both semesters, by appointment. A continuation of course 4, intended to provide additional practice in writing and speaking French. Cram, Hess.

8.—CORNEILLE. Two hours credit. First semester, by appointment. Reading of his greatest tragedies. Must be preceded by 3 and 4, and should be by 6. Stanton, Mahieu.

9.—RACINE. Two hours credit. Second semester, by appointment. Reading of his greatest tragedies. Must be preceded by 3 and 4, and should be by 6. Stanton, Mahieu.

10.—ORAL FRENCH COMPOSITION I. Two hours credit. Three recitations a week, first semester. This course is conducted entirely in French, and aims to give idiomatic and fluent use of the spoken language. Regular attendance at the meetings of the Cercle Français is expected of the students who elect this course. Must be preceded by 3 and 4, and preceded or accompanied by either 6 or 8, or their equivalents. By appointment. Mahieu.

11.—ORAL FRENCH COMPOSITION II. Two hours credit. Three recitations a week, second semester, by appointment. Continuation of course 10. Mahieu.

12.—MOLIERE. Three hours credit. First semester, at 11:30. Careful study of the more important plays, rapid reading of the others; reports in French by members of the class. Should be preceded by 6, or its equivalent. Galloo.

13.—FRENCH COMPOSITION, WRITTEN AND ORAL. Two hours credit. First semester, by appointment. Practice in writing and speaking French. Prerequisite, 4 or 7. Stanton, Mahieu.

14.—ADVANCED FRENCH COMPOSITION. Two hours credit. Second semester, by appointment. Translation, original composition, and practice in speaking French. Prerequisite, 7 or 13. Galloo.

50.—THE FRENCH ELEMENT IN ENGLISH. Three hours credit. Second semester, by appointment. A study of the influence of French upon the vocabulary and syntax of the English language, with especial reference to Norman and post-Norman periods. The course will be conducted in English. Neuen Schwander.

51.—ELEMENTARY FRENCH. Five hours credit. First semester, at 8:30 and 10:30. For Juniors and Seniors who are beginning French. The aim of this course is to give some insight into the fundamental principles of language, together with a more comprehensive acquaintance with French and wider reading than in the usual elementary courses for Freshmen and Sophomores. Galloo, Cate.

52.—FRENCH READING AND GRAMMAR. Five hours credit. Second semester, at 8:30 and 10:30. A continuation of course 51. Galloo, Cate.

53.—HISTORY OF EARLY FRENCH LITERATURE. Three hours credit. First semester, by appointment. From the earliest times to the classic period. Lectures, recitations, and private readings. Stanton, Mahieu.

54.—HISTORY OF MODERN FRENCH LITERATURE. Three hours credit. Second semester, by appointment. From the beginning of the classic period to the present day. Lectures, recitations, and private readings. Stanton, Mahieu.

55.—FRENCH LITERATURE OF THE SEVENTEENTH CENTURY. Two hours credit. First semester, by appointment. A study of the development of French literature from Malherbe to the end of the reign of Louis XIV. Stanton.

56.—FRENCH LITERATURE OF THE EIGHTEENTH CENTURY. Two hours credit. Second semester, by appointment. Special attention is paid to the life and works of Voltaire; study of Montesquieu, Rousseau and the encyclopedists; the dramatists. Neuen Schwander, Stanton.

57.—THE ROMANTIC SCHOOL I. Three hours credit. First semester, by appointment. A study of the rise of romanticism in France and of its characteristic products in poetry, the novel, and the drama. Lamar-tine, A. de Vigny, and A. de Musset. Galloo, Mahieu.

58.—THE ROMANTIC SCHOOL II. Two hours credit. Second semester, by appointment. A continuation of course 57, devoted chiefly to Victor Hugo's works. Galloo, Mahieu.

59.—THE LITERARY MOVEMENT IN THE SECOND HALF OF THE NINETEENTH CENTURY I. Three hours credit. First semester, by appointment. The reaction against romanticism, the Parnassiens, realism and naturalism. The reaction against the scientific spirit, idealism and symbolism. The rise and growth of the new literary criticism. Galloo.

60.—THE LITERARY MOVEMENT IN THE SECOND HALF OF THE NINETEENTH CENTURY II. Three hours credit. Second semester, by appointment. Continuation of course 59. Galloo.

61.—DEVELOPMENT OF THE FRENCH NOVEL I. Two hours credit. First semester, by appointment. A survey of the novel in the seventeenth and eighteenth centuries. Galloo.

62.—DEVELOPMENT OF THE FRENCH NOVEL II. Three hours credit. Second semester, by appointment. The novel in the nineteenth century, with special reference to the origin and growth of realism and naturalism. Galloo.

63.—THE FRENCH DRAMA. Three hours credit. Second semester, by appointment. A study of the development of the drama in France from its origin to the close of the nineteenth century. Lectures, recitations, and written reports. Galloo, Mahieu.

64.—OLD FRENCH. Two hours credit. First semester, by appointment. An introduction to French philology. Reading of the *Extraits de la Chanson de Roland* (Gaston Paris), with special attention to the phonetic changes and the inflections. Galloo.

65.—OLD FRENCH. Two hours credit. Second semester, by appointment. A continuation of course 63. *Chrestomathie de l'ancien français* (Constans). Galloo.

ITALIAN.

Students are advised to take, as preparation, courses 1 and 2 or 51 and 52 in French.

21.—ELEMENTARY ITALIAN I. Three hours credit. First semester, by appointment. Grammar, and easy reading. Cram.

22.—ELEMENTARY ITALIAN II. Continuation of course 21. Three hours credit. Second semester, by appointment. Grammar, composition,

and reading of works of Manzoni, Edmondo de Amicis and other modern writers. Cram.

23.—ITALIAN READING AND GRAMMAR. Two hours credit. First semester, by appointment. Grammatical exercises accompanying the reading and translating of works of Goldoni, Fogazzaro, Carducci, Pascoli. Prerequisite, course 22. Cram.

24.—WRITERS OF CINQUECENTO. Two hours credit. Second semester, by appointment. Reading of selections from Machiavelli, Cellini, Ariosto, Tasso, etc. D'Ancona and Bacci's *Manuale della letteratura italiana*, vols. I, II, and II. Prerequisite, course 23. Cram.

80.—DANTE. Three hours credit. First semester, by appointment. The *Divina Commedia*; its relation to the age, and its importance in the history of the Italian language and literature. Prerequisite, course 23. Cram.

RUSSIAN.

95.—RUSSIAN LANGUAGE I. Three hours credit. First semester.

96.—RUSSIAN LANGUAGE II. Three hours credit. Second semester.

SOCIOLOGY.

Professors: BLACKMAR (Head of Department), SMITH.

Associate Professor: HELLEBERG.

Assistant Professor: BODENHAER.

EQUIPMENT. Instruction in the department of sociology is conducted chiefly by lectures, reading, recitation, and investigation, aided in the elementary courses by textbooks. The University library is well equipped for the study of sociology. All of the principal magazines treating of the work of this department are on file in the reading room for the use of the students. In addition there are charts, maps, and outlines. In the natural history museum is a valuable collection of specimens for the study of anthropology and ethnology. A limited amount of investigation of social and racial conditions is being carried on.

ADVICE AS TO COURSES. Elements of sociology as found in course 1 or 50 or their equivalent is a prerequisite to further work in the department. At the beginning of the Junior year students desiring to major in sociology should consult with an instructor in the department in regard to choice of courses for the required major work.

The development of professional social work in this country opens up an attractive field for university men and women. The courses offered by this department are, therefore, of definite interest to those preparing to become workers in social settlements, secretaries of private charities, welfare secretaries in industries, staff sociologists in our state charitable and penal institutions, city superintendents of public welfare, recreation directors, and playground and social center workers. Experience has demonstrated that the study of sociology is a valuable preparation for teaching. It is a prerequisite to many courses in education.

Suggested courses for training for social service (Elements of Sociology a prerequisite):

I. *Training for Child Welfare and Public Health Service.* 56, The Family; 52, Social Pathology; 65, Immigration and Race Problems; 64, Urban Sociology; 63, Social Surveys; 67, Eugenics; 53, Remedial and Corrective Agencies; 66, Vital Statistics. Field work, two to six hours.

II. *Training for Social Work in the Industries.* 51, Applied Sociology; 55, Psychological Sociology; 52, Social Pathology; 63, Social Surveys; 70, Community Organization; 57, Socialism; 65, Immigration and Race Problems. Field work, two to six hours.

III. *Training in Preparation for Teaching.* 55, Psychological Sociology; Educational Sociology (see Education); Teaching of Social Sciences

(see Education); 67, Eugenics; 61, Contemporary Society in the United States; 58, Anthropology. Practice teaching, two to six hours.

IV. *Training for Community Work.* 63, Social Surveys; 70, Community Organization; 52, Social Pathology; 2, Rural Sociology; 64, Urban Sociology; 55, Psychological Sociology; 65, Immigration and Race Problems. Field work, two to four hours.

V. *Training for Service in Institutions.* 52, Social Pathology; 53, Remedial and Corrective Agencies; 104, Research Problems in Criminology (Graduate); 67, Eugenics; 58, Anthropology; 55, Psychological Sociology; 66, Vital Statistics. Field work, two to six hours.

VI. *Training for Ministry, Law, and Medicine.* 58, Anthropology; 56, The Family; 54, Public Opinion; 51, Applied Sociology; 55, Psychological Sociology; 53, Remedial and Corrective Agencies; 63, Social Surveys. Field work, two to four hours.

1. ELEMENTS OF SOCIOLOGY. Three hours credit. Both semesters, at 8:30 and 1:30. A general course in the foundations and principles of sociology, including a study of the origin, evolution, structure, organization and activities of society. The course is especially arranged for those who have not previously studied sociology. Prerequisite to all courses except 50.
Smith, Bodenhafer.

2.—RURAL SOCIOLOGY. Two hours credit. Second semester, at 8:30. A study of social conditions in rural districts and small towns. The agencies for social and economic betterment. The church and the school-house as social centers. Political, social, and economic organizations.
Smith.

50.—ELEMENTS OF SOCIOLOGY. Two hours credit. Both semesters, at 8:30. The same as course 1, except more difficult, and greater emphasis on pure sociology and social theory. Either 50 or 1 prerequisite to other courses.
Bodenhafer.

51.—PRINCIPLES OF APPLIED SOCIOLOGY. Three hours credit. Second semester, at 9:30. An application of the theories and principles studied in courses 1 and 50 to social activities. A special study of social energy and social waste, with methods of conservation of social energy and elimination of social waste.
Smith.

52.—SOCIAL PATHOLOGY. Two hours credit. First semester, at 11:30. A general study of poverty, pauperism, unemployment, epilepsy, insanity, degeneracy, etc., and their causes, prevention, and cure. Conditions of the slums and rural population, housing of the poor, social maladjustment, occupational diseases, etc.
Bodenhafer.

53.—REMEDIAL AND CORRECTIVE AGENCIES. Two hours credit. Second semester, at 11:30. Administration of charitable and correctional affairs; management of jails, reformatories, penitentiaries, and institutions for defectives and dependents; housing of the poor. Each student is required to visit at least two social institutions and report on same.
Bodenhafer.

54.—PUBLIC OPINION. Three hours credit. Second semester, at 2:30. A study of the origin and development of social control; public opinion and democracy; leadership and authority; phenomena of the public or ethnic mind; the relations of the individual and the group. Helleberg.

55.—PSYCHOLOGICAL SOCIOLOGY. Three hours credit. Each semester, at 1:30. A study of the social self and the process of its development, together with applications to a variety of social problems, in order to establish a viewpoint and method for sociology and all the social sciences.
Helleberg.

56.—THE FAMILY. Two hours credit. Second semester, at 2:30. The origin and growth of the family. The true family a biological, psychological and moral unity. Psychology of family life.
Helleberg.

57.—SOCIALISM. Two hours credit. First semester, at 2:30. The development of modern socialistic theories, including a study of French and German socialism. The development of the socialistic movement.

Helleberg.

58.—GENERAL ANTHROPOLOGY. Two hours credit. First semester, at 8:30. The natural history of man. Probable origin and antiquity of man. Comparison with anthropoid apes. Men of the old Stone Age—Neolithic man. The beginnings of art and industry.

Blackmar.

59.—ETHNOLOGY. Two hours credit. Second semester, at 8:30. Origin of races and ethnic groups. Racial differentiation and development. Characteristics of ethnic society. The conflict and survival of races. Their geographical distribution. Influence of geographical and physical environment. Comparison of natural and civilized races.

Blackmar.

61.—CONTEMPORARY SOCIETY IN THE UNITED STATES. Three hours credit. First semester, at 2:30. A general survey of the natural environment, population and its distribution, industrial and social groupings, and is designed through the study of current concrete social problems as a means of correlating the various sciences.

Helleberg.

62.—DEVELOPMENT OF SOCIAL THEORY. Five hours credit. Second semester, at 1:30. A rapid historical survey of social philosophy from Plato to Comte, followed by a more detailed examination of current sociological theories. Primarily a graduate course, but open to Seniors by permission of the instructor.

Helleberg.

63.—SOCIAL SURVEYS. Three hours credit. First semester, at 9:30. The history of the social survey. The social survey as a method of social investigation and of social statistics. This course is designed not only to present the literature of surveys, but to give the student the principles and practice of social surveys.

Smith.

64.—URBAN SOCIOLOGY. Two hours credit. First semester, at 9:30. A study of the population, conditions of life, and social problems in the modern city with special reference to American municipalities. This course is a special study of city problems for students preparing for social work.

Smith.

65.—IMMIGRATION AND RACE PROBLEMS IN THE UNITED STATES. Three hours credit. First semester, at 8:30. Causes of immigration. Changes in the character of immigration. Influence of recent immigration on social, political and economic conditions. Immigration laws of the United States. Revision of immigration laws.

Blackmar.

66.—VITAL STATISTICS. One hour credit. Second semester, Wednesday, at 10:30. Vital statistics, social sanitation, movement of population in registration areas, mortality statistics, disease, etc.

67.—EUGENICS. Three hours credit. Second semester, at 8:30. A study of the agencies under social control that may improve or impair racial qualities, either mentally, morally, or physically. Organic evolution, genetics, or heredity is a prerequisite for this course. Zoölogy 4, 64, or 72 would be sufficient.

Blackmar.

69.—CRIMINOLOGY. Two hours credit. First semester, 1:30. Causes of crime. Development of methods in treatment of criminals. Penal institutions. Preventive measures.

Bodenhafer.

70.—COMMUNITY ORGANIZATION. Two hours credit. Second semester, at 9:30. A study of the problems involved in the organization of social agencies, with a critical study of methods followed in organizing social centers, civic leagues, federated and union churches, and similar organizations. This course is especially designed for teachers, ministers, and others expecting to direct the activities of their respective communities. Prerequisite, social surveys.

Smith.

71.—SOCIAL EVOLUTION. Two hours credit. Second semester, 9:30. A study in the physio-psychic causes of social development. Social heredity. The origin and the perpetuation of social traits. Blackmar.

ZOOLOGY.

Professor: ALLEN (Head of Department).

Associate Professor: BAUMGARTNER.

Assistant Professors: JOHNSON, NOWLIN, ROBERTSON.

Preparator and Demonstrator: DOUTHITT.

The department is in possession of ample facilities in the way of apparatus and laboratory material. There are representative types of marine animals from the Pacific and the Atlantic coasts, as well as from Bermuda and Jamaica. Histological, cytological and embryological material of great variety has been provided. Microscopes, microtomes, and other apparatus for even the most advanced work are at hand.

ADVICE CONCERNING CHOICE OF COURSES. Course 1 is designed as an introduction to the subject, and, so far as possible, gives a general survey of the animal kingdom. The character of the work is such as to lay particular stress upon training in the independent observation and correlation of facts. It is, therefore, a course which may be taken by those who wish merely to gain a general idea of zoölogy, and also by those who wish to become acquainted with the methods of scientific work. As an elementary course it forms a basis for any advanced work, and is required for entrance into other courses, except 64.

MAJOR REQUIREMENTS. In the work counting toward a major, students must complete ten hours chosen from among the following courses: 51, 52, 53, 54, 55, and 71.

1.—ELEMENTARY ZOÖLOGY. Five hours credit. First semester, laboratory, M. W. F., 8:30 to 10:30, 10:30 to 12:30, or 1:30 to 3:30; recitations and lectures, Tu. Th., 8:30 or 11:30. Second semester, laboratory, 8:30 to 10:30, or 10:30 to 12:30; recitations and lectures, 9:30 or 11:30. A study of biological principles as illustrated in the animal kingdom as a whole. The laboratory work is designed to give training in methods of scientific observation and interpretation. Fee, \$2.50.

Allen, Johnson, Nowlin, Robertson, and assistants.

2.—AQUATIC ZOÖLOGY. Two hours credit. Second semester, Tu. Th., 10:30 to 12:30. Field and laboratory course dealing with physiology, structure, and life cycles of protozoa, worms, and crustaceans. Attention will be given to their relation to water supply, sewage disposal and other problems of sanitation. Prerequisite, zoölogy I or equivalent. Fee, \$1.50.

Nowlin.

3.—COMPARATIVE ANATOMY. Five hours credit. First semester, a section primarily for deficient medical students. Laboratory, M. W. F., 1:30 to 3:30; lectures, Tu. Th., at 2:30. Second semester, for premedical and general students. Laboratory, M. W., 1:30 to 4:30, or Tu. Th. F., 1:30 to 3:30; lectures, Tu. Th., at 3:30. A course dealing with the structure and relations of the vertebrates. It consists of lectures, assigned readings, and a laboratory study of types. This course is designed for premedical students, those intending to teach and those desiring a general cultural course. Prerequisite, course 1 or equivalent. Fee, \$3.50.

Baumgartner.

4.—ORNITHOLOGY. Three hours credit. Second semester, 3:30 to 5:30, M. W. F., or 3:30 to 5:30, Tu. Th., and by appointment. The structure, natural history and systematic study of birds; considerations of their instincts and intelligence, and migrations. Special reference to the birds of Kansas. Museum specimens and field studies. One of the chief aims of this course is to learn to identify our common birds. Fee, \$1.50.

Johnson.

5.—HEREDITY AND ANIMAL BREEDING. Two hours credit. First semester, Tu. Th., 10:30 to 12:30. An introduction to the laws of heredity and variation in animals and man. The cellular basis; Mendel's law; the origin of new races; the influence of environment. Lectures, recitations, laboratory work, dealing with problems relating to variation and heredity. Part of the time is spent in study of the breeds of domestic animals and the principles underlying their improvement. Prerequisite, course 1 or equivalent. Fee, \$1. Robertson.

6.—PARASITOLOGY. Three hours credit. Both semesters. First semester, laboratory, W., 1:30 to 3:30; lecture, M. F., 2:30. Second semester, laboratory, W., 8:30 to 10:30 or 1:30 to 3:30; lecture, M. F., 9:30 or 2:30. A study of the animal parasites of man. For premedical students interested in public health problems. Prerequisite, zoölogy I or equivalent. Fee, \$2. Nowlin.

50.—ELEMENTARY ZOÖLOGY. Five hours credit. First semester, 8:30 to 10:30. A study of biological principles as illustrated in the animal kingdom as a whole. The laboratory work is designed to give training in methods of scientific observation and interpretation. This course is a duplication of course 1, and is not open to those who have taken the latter. Fee, \$2.50. Allen.

51.—MAMMALS. Three hours credit. First semester, 8:30 to 10:30, M. W. F. Prerequisite, eight hours of zoölogy or equivalent. A survey of the mammals of North America, their geographic distribution, classification, habits and economic importance. Special consideration given to the mammals of Kansas, based on the study of museum material. Fee, \$2. Johnson.

52.—MAMMALIAN PROBLEMS. Two hours credit. Second semester, 10:30 to 12:30, Tu. Th. Prerequisite, course 51. Selected topics, consisting of field studies and studies of the classification and life histories of groups of mammals of Kansas. For qualified students who desire further work along mammalian lines. Fee, \$1.50. Johnson.

53.—ANIMAL HISTOLOGY. Five hours credit. First semester, 3:30 to 5:30. The methods of preparation and a careful study of normal tissues constitute this course. Lectures, assigned readings, and laboratory work. Prerequisites, courses 1 and 3, or equivalent. Fee, \$3.50. Baumgartner.

54.—CYTOLOGY. Five hours credit. First semester, 8:30 to 10:30. General structure and functions of the cell in development and inheritance. Cell division; cell differentiation; formation of germ cells; sex determination; fertilization; parthenogenesis, etc., with emphasis on chromosomes and other elements concerned in heredity. Training in tissue culture methods and cytological technique. Prerequisite, ten hours of zoölogy or equivalent. Fee, \$3.50. Robertson.

55.—EMBRYOLOGY, DESCRIPTIVE AND EXPERIMENTAL. Five hours credit. Second semester, 10:30 to 12:30. A study of the normal development of the frog, the chick, and the pig, together with the underlying principles of embryonic development, as studied by experimentation. Opportunity will be given for properly qualified students to do original research work. Prerequisite, ten hours of zoölogy or equivalent. Fee, \$3.50. Allen.

56.—VERTEBRATE PALEONTOLOGY. Five hours credit. Second semester, appointment. A course dealing with the anatomical characters which have marked the evolutionary stages in the history of vertebrates. Lectures, recitations, assigned readings, and laboratory work. Abundant material is at hand for the illustration of the course. Prerequisite, ten hours of zoölogy. Geology I is recommended as further preparatory work. Fee, \$3.50. Allen.

57.—EVOLUTION OF BEHAVIOR. Three hours credit. Second semester,

M. W., 10:30 to 12:30; Friday, 10:30 to 11:30. A course dealing with the evolution of behavior in relation to sense organs and the nervous system. Lectures, dissection, and experimentation. Nowlin.

58.—HISTOLOGICAL TECHNIQUE. Two hours credit. Second semester, 10:30 to 12:30, Tu. Th., and two hours a week by appointment. This course is designed to give training in the preparation of tissues for microscopical study. Prerequisite, ten hours of biology. Fee, \$2.

Baumgartner and Robertson.

60.—ANIMAL BIOLOGY. Three hours credit. First semester, 9:30. This course is designed for those students who wish to study the general theories of animal biology beyond the point reached in the elementary course. Lectures, recitations, discussions, and assigned readings. Prerequisite, zoölogy I or equivalent in other biological sciences. Allen.

61.—VERTEBRATES OF THE PAST. Two hours credit. First semester, 10:30. A consideration of the various types of extinct animals, with a discussion of the general processes of evolution through which the present forms of animal life have passed. This will be illustrated by the collection in the museum. Prerequisite, zoölogy I or equivalent. Allen.

64.—HEREDITY IN RELATION TO EUGENICS. Three hours credit. First semester, 10:30; second semester, 9:30. Lectures, assigned readings, and conferences. An exposition of the biological laws underlying eugenics. The latter half of the term is spent in a study of the human traits and their inheritance through family pedigrees. For students of sociology, medicine, education, etc. Not open to those who have taken course 5. Prerequisite, five hours of biological science. Fee, \$1. Robertson.

71.—PROTOZOÖLOGY. Five hours credit. First semester, 10:30 to 12:30. Laboratory and lecture course, with instruction in methods of technique. Special emphasis is placed upon those forms producing human diseases. Prerequisite, ten hours of zoölogy or equivalent. Fee, \$3.50. Nowlin.

72.—GENETICS. Five hours credit. Second semester, 8:30 and by appointment. Lectures, readings and laboratory work. A careful study of variation, inheritance of acquired characters, mutation, Mendelism, sex-linked inheritance and the inheritance of secondary sexual characters, problems of evolution in the light of experimental breeding. Attention is given to the varieties of domesticated animals. Prerequisite, ten hours of zoölogy, including zoölogy 5 or 64, or their equivalents. Fee, \$3.50.

Robertson.

73.—ZOÖLOGICAL PROBLEMS. Three or five hours credit. Both semesters, and by appointment. This course is designed to provide for the continuation of work of an essentially original character begun in some preceding course. It is to be taken under the direction of the teacher under whom the work was begun. Fee, \$2.50 or \$3.50. The Staff.

SECTION IV.

School of Engineering.

Including Mining and Metallurgy.

(189)

FACULTY.

FRANK STRONG, Ph. D., Chancellor of the University, and President of the Faculties.

PERLEY F. WALKER, M. M. E., Dean of the School of Engineering, and Professor of Industrial Engineering.

ERASMUS HAWORTH, Ph. D., Professor of Geology and Mineralogy.

WILLIAM A. GRIFFITH, Professor of Drawing and Painting.

JAMES NAISMITH, M. P. E., Professor of Physical Education.

FREDERICK E. KESTER, Ph. D., Professor of Physics.

GEORGE C. SHAAD, E. E., Professor of Electrical Engineering.

HAMILTON P. CADY, Ph. D., Professor of Chemistry.

HENRY W. HUMBLE, A. M., Professor of Law.

HERBERT A. RICE, C. E., Professor of Mechanics and Structural Engineering.

GOLDWIN GOLDSMITH, Ph. B., Professor of Architecture.

FRANK B. DAINS, Ph. D., Professor of Chemistry.

CLEMENT C. WILLIAMS, C. E., Professor of Civil Engineering.

CHARLES H. ASHTON, Ph. D., Professor of Mathematics.

FREDERICK H. SIBLEY, M. E., Professor of Mechanical Engineering.

GEORGE J. HOOD, B. S., Professor of Engineering Drawing.

CLINTON M. YOUNG, E. M., Professor of Mining Engineering.

HERMAN C. ALLEN, Ph. D., Professor of Chemistry.

RAYMOND C. MOORE, Ph. D., Professor of Geology and Paleontology, and State Geologist.

CHARLES A. HASKINS, B. S., Professor of Sanitary Engineering.

MARTIN E. RICE, M. S., Associate Professor of Physics.

FREDERICK N. RAYMOND, A. M., Associate Professor of Rhetoric.

WILLIAM C. MCNOWN, B. S., Associate Professor of Civil Engineering.

ALFRED H. SLUSS, B. S., in M. E., Associate Professor of Mechanical Engineering.

GEORGE W. STRATTON, Ph. D., Associate Professor of Chemistry.

F. ELLIS JOHNSON, E. E., Associate Professor of Electrical Engineering.

WILLIAM M. DUFFUS, A. M., Associate Professor of Economics.

FRANK L. BROWN, B. S., Associate Professor of Mechanics.

RICHARD L. GRIDER, E. M., Associate Professor of Mining Engineering.

WINTHROP P. HAYNES, Ph. D., Associate Professor of Geology.

SOLOMON LEFSCHETZ, Ph. D., Associate Professor of Mathematics.

EDWIN F. STIMPSON, B. S., Assistant Professor of Physics.

FRANK E. JONES, Assistant Professor of Mechanical Drawing.

HERBERT E. JORDAN, Ph. D., Assistant Professor of Mathematics.

WALTER S. LONG, A. M., Assistant Professor of Chemistry.

JACOB O. JONES, M. C. E., Assistant Professor of Hydraulics.

JOHN J. WHEELER, A. B., Assistant Professor of Mathematics.

CLARENCE ESTES, Chem. E., Assistant Professor of Chemistry.

RAY Q. BREWSTER, A. M., Assistant Professor of Chemistry.

EDGAR WERTHEIM, B. S., Assistant Professor of Chemistry.

LA FORCE BAILEY, A. M., Assistant Professor of Architecture.
 FLOYD E. ROWLAND, Ph. D., Assistant Professor of Chemistry.
 FRANK L. FLEENER, A. M., Assistant Professor of Geology.
 ALFRED H. WIETERS, B. S., Assistant Professor of Sanitary Engineering.
 JOHN A. DENT, M. E., Assistant Professor of Mechanical Engineering.
 NORMAN F. STRACHAN, B. S., Assistant Professor of Civil Engineering.
 ESTHER WILSON, A. M., Instructor in English.
 WILLARD A. WATTLES, A. M., Instructor in English.
 OSCAR ROCKLUND, Instructor in Machine Construction and Superintendent of Fowler Shops.
 EMILY V. BERGER, A. B., Instructor in Chemistry.
 ELBERT L. TREECE, B. S., Instructor in Bacteriology.
 HARRY A. FORNEY, Instructor in Machine Construction.
 ARTHUR R. BAILEY, Instructor in Machine Construction.
 ALBERT C. RUTHERFORD, Instructor in Machine Construction.
 EDWARD C. PERRY, A. B., Instructor in Romance Languages.
 JUSTICE NEAL CARMAN, A. B., Instructor in Romance Languages.
 CORNELIUS GOUWENS, M. A., Instructor in Mathematics.
 ARTHUR G. BYRNS, B. S., Instructor in Hispanic Languages.
 JOHN W. DAWSON, Instructor in Architecture.
 NATHAN H. HUFFMAN, A. B., Instructor in Hispanic Languages.
 NANA E. DE ALBALEDEJO, Instructor in Hispanic Languages.
 BEN E. BROWN, A. B., Instructor in Physics.
 CYRIL A. NELSON, Ph. D., Instructor in Mathematics.
 JOHN C. WARNER, A. B., Instructor in Physics.
 WARREN R. NEUMANN, B. S., Instructor in Electrical Engineering.
 JOHN V. CHALLISS, A. B., Assistant Instructor in Chemistry.
 JAMES B. RAMSEY, A. B., Assistant Instructor in Chemistry.
 EDWIN L. WHITE, Assistant Instructor in Engineering Drawing.
 JAY J. JAKOWSKY, Assistant Instructor in Engineering Drawing.
 WARREN E. BLAZIER, Assistant Instructor in Electrical Engineering.
 THOMAS M. MOTT, Assistant Instructor in Civil Engineering.
 RALPH BUFFINGTON, A. B., Assistant Instructor in Chemistry.
 R. LEFFERD, Assistant Instructor in Machine Construction.
 GEORGE P. BUNN, Student Instructor in Engineering Drawing.
 JOHN R. WAHLSTEDT, Student Instructor in Engineering Drawing.
 ALBERT L. SHORT, Student Instructor in Engineering Drawing.

LECTURERS.

JOHN S. WORLEY, B. S., M. S., Member of Valuation Committee, Interstate Commerce Commission. Lecturer on Transportation.
 F. ROLLIN FEITSHANS, B. S., Mining Engineer. Lecturer on Industrial Topics.

ADMINISTRATIVE COMMITTEE.

P. F. WALKER	G. GOLDSMITH.
C. H. ASHTON, <i>Secretary.</i>	C. M. YOUNG.
G. C. SHAAD.	M. E. RICE.
H. A. RICE,	H. C. ALLEN.

C. C. WILLIAMS.

G. J. HOOD, *Chief Adviser of Freshmen.*

SCHOOL OF ENGINEERING.

DEPARTMENTS.

CIVIL ENGINEERING.

ELECTRICAL ENGINEERING.

MECHANICAL ENGINEERING.

MINING ENGINEERING, SCHOOL OF MINES

CHEMICAL AND METALLURGICAL ENGINEERING.

ARCHITECTURE.

ENGINEERING AND ADMINISTRATIVE SCIENCE.

ORGANIZATION AND PURPOSE.

The School of Engineering was organized as a distinct School of the University in 1891. Prior to that time, for eighteen years, courses in engineering had been given under the collegiate department, mainly in the civil and electrical branches.

Technical work is given in eight departments, entirely within the control of the School. Departments of the College of Liberal Arts give courses in science, mathematics, languages, and economics for engineering students. The curriculum covers work in the main branches of engineering and architecture leading to degrees in the following: civil, electrical, mechanical, mining, chemical and metallurgical, and architectural engineering; architecture; engineering and administrative science, under the two branches of industrial engineering and transportation and construction. Within these branches students may select optional work for more specialized training in railway, structural, sanitary, hydraulic, highway, telephone, automobile, coal or metal mining, ore dressing, geological, and metallurgical engineering.

The requirements for graduation emphasize the fact that a thorough grounding in the fundamental sciences, mathematics, and language is essential to successful engineering practice. This idea is then extended by introducing a moderate amount of specialized work in the Junior and Senior years, but the aim throughout is to develop the principles underlying technical engineering work rather than to make direct applications. It will be observed, moreover, that the requirements for graduation call for about twenty credit hours more than are required for a degree in pure science or arts, and this excess is in the nature of practice work in shop, field, and drawing room. By these three methods the purpose of the School is shown, namely, to give the basis of a liberal education while providing for training in specialized professions, and to give sufficient practice work and familiarity with operating methods to enable the graduate to make himself useful to employers while he is gaining the broader experience necessary to a successful engineering career.

FIVE-YEAR COURSES.

In order to give greater emphasis to the value of general educational training for engineers, provision has been made for students so desiring to spend one year in the College of Arts and Sciences, and then to enter the School of Engineering for four years of study, making up a total of five years in the University. The conditions under which this may be done, and statements as to the degree conferred on completion of the work, are given in the following pages. The amount of technical work

required is practically the same as in the regular four-year courses, but opportunities are offered for selecting a wider range of studies, and so providing for a broader education. Young men just graduating from high school are strongly urged to adopt this plan of procedure.

The leading characteristics of the several branches are noted in the following outlines:

Civil Engineering.

In common with the other engineering courses, the civil engineering curriculum includes training in the fundamental sciences of mathematics, physics and chemistry, as well as in language and drawing. The professional work of the curriculum covers plane and higher surveying; railway surveying, location, construction and maintenance, terminal design; the design of bridges, buildings, and other steel, reinforced concrete and masonry structures; construction and foundation work; highway engineering, including the location and construction of highways and the design and laying of pavements, with laboratory studies of both petrous and bituminous paving materials; hydraulic power, drainage and irrigation; city planning, public water supplies, sewerage and other municipal problems. Special provision is made for training students for highway, hydraulic, railway, structural, or sanitary engineering by allowing the choice of certain optional courses.

Electrical Engineering.

The specialized studies under this heading follow the fundamental work in physics and machine elements. They give emphasis to the methods of design, construction, and operation of electrical equipment of all kinds as employed for the production, distribution, and application of electrical energy, and in telephone service. Much emphasis is laid on the fundamental principles of mechanics and electricity, and on laboratory practice in handling standard apparatus. Original investigation is encouraged in every way possible.

Mechanical Engineering.

In the professional work especial emphasis is placed on machine construction and design, the properties of materials, power generation with heat engines, and general manufacturing methods. Options in the Senior year permit specialization to a limited degree, so that the student may give his attention to that line in which he develops the greatest interest. The aim is to give the training which will permit the graduate to perform successfully the work required of the technical designer and administrator in manufacturing industries.

Mining Engineering—School of Mines.

The mining department, in conjunction with the departments of geology, chemistry and metallurgy, with the general work of the Engineering School as a whole, performs all the functions of a School of Mines.

The courses include work in many of the departments of the University. Emphasis is laid on chemistry, geology, mineralogy, metallurgy, physics, mechanics, ore dressing, surveying, design, mining operation and management. Under the heading "Curriculum," options for the five important branches of the mining industry, namely, mining geology, metal mining, coal mining, ore dressing, and metallurgy, given under chemical engineering, are arranged to permit the student to specialize in the work for which he has a preference and for which he is best fitted. The aim is to encourage original investigation, and to prepare men

to undertake the development of mineral properties, to design and construct mine plants and ore-dressing mills and works, to evaluate mining property, to properly report on propositions submitted for investment, and to supervise mining operations.

Chemical and Metallurgical Engineering.

In this branch opportunity is given for specialization in technical chemistry, with the aim to combine the ability to perform chemical work with training in the fundamentals of engineering. It is expected that students are fitting themselves for positions as chemists and superintendents of manufacturing plants where work is based on chemical science. These include many industries, such as those involving iron and steel, smelting, refining, bleaching and dyeing processes, and the manufacture of many specialized products.

Architecture and Architectural Engineering.

These two options are practically the same for the first two years, after which students showing proficiency in architectural design will continue in the course in architecture, while those best fitted for construction pursue the course in architectural engineering. Both courses include much that involves both the artistic and the utilitarian in building design and construction. It is recognized that architecture is essentially a fine art, but that this should be combined with the scientific and technical training which will enable the graduate to grasp the constructive problems of design; it is also recognized that structural engineering requires an appreciation of the principles of design. The professional work given includes thorough instruction in the history and theory of architecture and in the principles of design and construction. It is the aim to give such training as will enable the graduate to render efficient service while he is supplementing his school training by experience gained in office practice.

Engineering and Administrative Science.

Two distinct lines of training are provided under this head under the names of "Industrial Engineering Option" and "Transportation and Construction Option." They are similar in this respect, that each includes about twenty-five hours credit in economics, sociology, and other college courses. This work replaces a corresponding amount of technical application work found in the regular engineering courses.

The industrial engineering option provides training for men who desire to enter the employment of manufacturing concerns for work in business lines such as cost accounting, sales work, in the production and planning departments, and in lines leading to general executive work. Attention is called particularly to the opportunities opened in this way for sales agency work in foreign markets for large export manufacturers.

The transportation and construction option provides training for men who expect to enter positions concerned with administration of construction, contracting, or transportation enterprises, or positions leading to city manager. The fundamentals of civil engineering are combined with work in economics and business courses. Attention is called particularly to the increasing demand for service with cities on the management plan, with state and county boards on highway traffic problems, and with the traffic departments of railroads.

DEGREES GRANTED.

All graduates of the School of Engineering are admitted to the degree of Bachelor of Science in Engineering, Bachelor of Science in Architecture, or Bachelor of Science. The first two are given to those who

have completed the work laid out on the regular four-year plan, based on entrance from the accredited high schools. The last is given to those who enter the School of Engineering after having completed thirty hours of work in the College of Arts and Sciences, and to those who complete the work offered in engineering and administrative science.

All graduates of the School of Engineering may enter the Graduate School of the University and become candidates for the degree of Master of Science under the regulations there in force.

Graduates in engineering from this school, and those who have received the master's degree for advanced study in engineering under the Graduate School, are eligible to the professional degrees of Civil Engineer, Electrical Engineer, Mechanical Engineer, Engineer of Mines, Chemical Engineer, and Architectural Engineer, whichever is appropriate to the undergraduate work taken. Candidates for these degrees must have spent at least three years of actual time in professional practice in positions of responsibility, in the design, construction, or operation of professional works, and must furnish detailed and satisfactory evidence as to the nature and extent of this practice.

The candidate must submit a thesis, accompanied by detailed explanations, drawings, specifications, estimates, etc., and embodying the results of his own work or observation. If approved, the thesis, with all accompanying materials, becomes the property of the University.

The thesis for any professional degree must be delivered to the Dean of the School of Engineering on or before May 15.

SCHOLARSHIP STANDING FOR GRADUATION.

In the General Information section the system of grading is explained, there being four passing grades indicated by the letters A, B, C, and D. The last one, D, indicates a bare passing mark.

In the School of Engineering there is a regulation which limits the amount of barely passing grade work which will be accepted as credit toward a degree. Under this rule a student who has grade D in more than twenty-five per cent of his total hours will not be recommended for graduation unless his case is given special consideration by the school faculty. Such special consideration may be given him only in case he has secured grades better than D in fifty per cent of his hours of credit work in mathematics, physics, chemistry, geology, and all of the specialized engineering departments excepting shop work and drawing.

ADMISSION.

By act of the state legislature, all graduates of accredited high schools in Kansas are admitted to the Freshman class without examination.

Graduates of a high school of another state are admitted on the same basis, provided the university of that state has approved the school for its accredited list.

Graduates of other preparatory schools will be admitted on such conditions as the Faculty may impose.

For the guidance of prospective students who desire to prepare themselves without graduating from accredited high schools, an outline of preparatory studies which has been followed for many years is given below. A total of fifteen units must be offered for admission.

ENGLISH.—Rhetoric and English literature, 3 or 4 units. Three units required.

MATHEMATICS.—Elementary algebra, $1\frac{1}{2}$ units; plane geometry, 1 unit; solid geometry, $\frac{1}{2}$ unit; plane trigonometry, $\frac{1}{2}$ unit; advanced algebra, $\frac{1}{2}$ unit. Three units required to prepare for the regular engineering courses.

FOREIGN LANGUAGES.—Latin, 1, 2, 3, or 4 units; Greek, 1, 2, 3, or 4 units; German, 1, 2, 3, or 4 units; French, 1, 2, 3, or 4 units; Spanish, 1 or 2 units. Two units at entrance and ten hours of German, French, or Spanish in the University complete the requirements for graduation.

PHYSICAL SCIENCES.—Physical Geography, 1 or $\frac{1}{2}$ unit; physics, 1 unit; chemistry, 1 unit. One unit required.

BIOLOGICAL SCIENCES.—Botany, 1 unit; zoölogy, 1 unit; physiology, 1 or $\frac{1}{2}$ unit; biographical science, 1 unit.

HISTORY AND SOCIAL SCIENCE.—Greek and Roman history, 1 unit; mediæval and modern history, 1 unit; English history, 1 unit; American history, 1 unit; economics, 1 or $\frac{1}{2}$ unit; civics, $\frac{1}{2}$ unit. Three units recommended.

MANUAL TRAINING.—Woodwork, forging, and machine tool work, 2 units; free-hand or mechanical drawing, 1 unit.

MISCELLANEOUS.—Stenography, $\frac{1}{2}$ unit; bookkeeping, $\frac{1}{2}$ unit; commercial law, $\frac{1}{2}$ unit; commercial geography, $\frac{1}{2}$ unit; agriculture, $\frac{1}{2}$ or 1 unit; psychology, $\frac{1}{2}$ unit; advanced arithmetic if taken after one year of algebra, $\frac{1}{2}$ unit. Not more than two units are allowed.

Entrance Examination.

Candidates for admission who are not graduates of accredited high schools may offer themselves for examination in subjects usually embraced in the high-school curriculum. Whenever a candidate has thus secured credit for the equivalent of the work included in the curriculum of the accredited high school, he will be admitted to the Freshman class.

A schedule of these examinations will be found on page 52 of the General Information Section of the Catalog.

Inadequate Preparation.

When a student by his current work shows insufficient preparation for any course, he may be required to make good such deficiency by further study as recommended by the instructor and approved by the Dean of the School.

Admission to Advanced Standing.

Credit for work of collegiate or professional standing is granted only on recommendation of the Advanced Standing Committee. For regulations governing the granting of such credit, see "Admission to Advanced Standing," Section I, page 50.

Foreign Language Required for Graduation.

The total amount of work in foreign language which is required for graduation, both high-school credits and courses taken after entering the University being considered together, must be equivalent to twenty hours in University courses, of which at least ten hours shall be in one modern foreign language. A student entering without any foreign language is required to take fifteen hours in the University, the entire time to be given to a single foreign language. Each unit of entrance credit counts as five hours.

The curriculum (see page 200) calls for ten hours of modern foreign language in the Freshman year. In any case where a student is able to satisfy the foreign language requirements by taking a lesser number of hours than ten, he may substitute other University work for the number of hours remaining.

Students who take up the military work in the University branch of the Reserve Officers' Training Corps are allowed to omit ten hours of modern foreign language.

Mathematics Required for Graduation.

The total amount of work in mathematics which is required for graduation, both high-school credits and courses taken after entering being considered together, must be equivalent to thirty-two hours in University courses for civil, electrical, mechanical, and architectural engineering students, and twenty-nine hours for mining-, chemical-engineering, and architecture students. Each unit of entrance credit counts as five hours. Students who present entrance credits amounting to more than fifteen hours, however, must complete the courses in calculus as prescribed in the curricula for the several branches.

Special Students.

Opportunity is given in the School of Engineering for the admission of persons of mature years who desire to pursue some special lines of work without following any prescribed course of study or becoming candidates for a degree.

The admission of such special students is directly under the control of the Dean of the School of Engineering, whose certificate of acceptance must be presented to the Registrar before registration. Applicants for admission as special students must present satisfactory evidence of proper preparation for the courses desired.

Special students are subject to the same regulations as are regular students with regard to the quality of work performed and attendance at recitations and examinations, but not as to number of hours to be taken in regular courses.

If a special student later becomes a candidate for a degree, the credits he has received while enrolled as a special student will not be allowed to count towards this degree, except by the approval of the Faculty. In no case may a student be granted a degree until he has been enrolled for one year as a regular student.

Anyone regularly enrolled in another school of the University may be admitted as a special student to engineering classes, but all applications for such enrollment must be accompanied by the recommendation of the dean of the school concerned.

REGISTRATION.

All candidates for admission and all students of the University intending to pursue their studies during the ensuing year should present themselves for registration at the University on September 13, 14, 15, 1920.

Registration at a later date will be permitted only on the payment of a fee of one dollar.

ENROLLMENT.

After registration has been completed with the Registrar and fees have been paid, students should apply to the Dean for enrollment in their classes. Enrollment the first semester occurs September 14 and 15, 1920, and on the first day of the second semester.

Enrollment at a later date will be permitted only on the payment of a fee of one dollar.

Enrollment Regulations.

The amount of work to be carried by students is expected to conform to the lists printed in the curriculum on the following pages. The number of hours there indicated may not be exceeded unless by express permission of the Dean. Students who have shown inability to carry the full schedule, or who plan to devote time to remunerative work outside of school, are frequently obliged to restrict the number of hours carried to fifteen or even less.

Students are assigned to groups, each group being in charge of a member of the Faculty who acts as adviser at enrollment and during the year. Students above the Freshman class are assigned to groups according to departments in which they are specializing. Advisers are expected to retain oversight over their charges throughout the year. Information on the current work of students is available for advisers at the Dean's office, based on reports received from the several instructors. Students whose work is unsatisfactory will be required to modify their enrollment.

Matriculation fee, for residents of the state.....	\$10.00
for nonresidents	15.00
Incidental fee per school year, for residents of the state.....	20.00
for nonresidents	30.00
Diploma fee, at graduation.....	10.00

Work is being offered also of a grade below that required for regular credit, in what are termed vocational courses. By means of these courses effort is made to extend the facilities of the University to a large

group of young men who have not had time or opportunity to fit themselves for regular engineering work. When possible the work is carried on in coöperation with the school authorities of cities and towns and with industrial organizations which employ boys in considerable numbers.

SPECIAL EXTENSION WORK IN THE MINING DISTRICTS.

A coöperative plan has been developed whereby the Manual Training Normal School at Pittsburg unites with the School of Engineering in providing training for miners and others in the mining districts in southeastern Kansas. Under this arrangement the Normal School provides for the more elementary class work in mathematics and science, and for vocational courses, while the School of Engineering provides for the technical work of higher grade.

In order to avail himself of the opportunity thus offered, the prospective student in the district should communicate with the Dean of the School and arrange with him for a plan of work. This work will be so laid out that as much as possible can be done by the man at home or at the special Normal School classes. When ready for the advanced work the student will begin correspondence courses under engineering instructors. He will combine personal conferences and occasional visits to the university to do laboratory exercises, with the correspondence study. A more complete statement of the plan is being made in a special circular.

For further details, see "University Extension Division."

TECHNICAL SOCIETIES.

TAU BETA PI. Kansas Alpha Chapter of the honorary engineering society of Tau Beta Pi was installed in December, 1914. Members are from the Senior and Junior classes, chosen under regulations which require that all who are elected shall have standing in the upper fourth of their class. It is governed entirely by undergraduates.

Departmental Student Societies.

In each of the six departments in which a complete course of study leading to graduation is scheduled, there is a well-organized society holding regular meetings at weekly or biweekly intervals. At these meetings technical addresses are given or topics from the current press discussed. The architectural, chemical, and civil engineering societies are local in character. The electrical, mechanical, and mining organizations are connected with the respective national engineering societies. More detailed information is given in the General Information section of the Catalog.

CURRICULUM.

For the Four-year Schedules Leading to the Degree of Bachelor of Science in Engineering, and to Degree of Bachelor of Science.

The work required for the degree of Bachelor of Science in the School of Engineering is in large measure prescribed. The following schedules show the variations among the several branches. Students are required to enroll for the work in the order given, excepting a few of the specialized courses in the Junior and Senior years, which do not depend directly on preceding courses.

The work of the Freshman year is very nearly the same for all students, so that a choice among the several branches need not be made at the start, except in the cases of architecture and architectural engineering. A modification of the courses in machine construction makes it necessary for those planning to take civil and mining engineering to make definite decision at the end of the first semester.

COURSES COMMON TO ALL LINES.†

FRESHMAN YEAR.

FIRST SEMESTER, 17 hours credit.*

<i>Course number.</i>	<i>Subject.</i>	<i>Hours credit.</i>
Mathematics 2	College Algebra	3
Mathematics 3	Plane Trigonometry	2
German, French, or Spanish†	(Course as approved)	5
English 1 E	Rhetoric I	3
Engineering Drawing 1	} Free-hand and Mechanical Drawing	2
Engineering Drawing 2, or		
Machine Construction 1 and 2		
Industrial Engineering 1	Machine Drawing, or	2
	Foundry Practice and Pattern Making	2
	Engineering Lectures	2

SECOND SEMESTER, 17 hours credit.

Mathematics 4 E	Analytic Geometry	5
German, French, or Spanish†	(Course as approved)	5
English 2 E	Rhetoric II	2
Engineering Drawing 3	Descriptive Geometry	3
Engineering Drawing 2 or	} Machine Drawing, or	2
Machine Construction 1, 2, 3, 5,		
Geology 2**	Shop Practice as assigned	3
	Elementary Geology	3

CIVIL ENGINEERING.

SOPHOMORE YEAR.

FIRST SEMESTER, 18½ hours credit.

Civil Engineering 1	Elementary Surveying	3
Mathematics 5 E	Calculus I	5
Physics 7 a	General Physics	5
Mechanical Engineering 5	Engines and Boilers	3
Mechanics 57	Cement Laboratory	1
	Technical Report I	½

*THE HOUR OF CREDIT.—The amount of work required to complete a course is measured in "hours." One hour in the School of Engineering represents an amount of work which is estimated to require three hours per week, throughout a semester, of the time of a student of average ability. These three hours may be divided in any ratio between class attendance and outside work, most courses being in the ratio of one hour in class to two hours of outside preparation; or two hours in class to one hour of outside preparation or report writing; or all three required in class with no outside preparation. In the descriptions of courses the number of hours credit for each is stated.

†The foreign language chosen is carried regularly throughout the year, five hours each semester. The selection of the language courses will depend on the amount and kind of language offered at entrance. Students offering more than two units at entrance may be allowed to substitute other nontechnical courses for the foreign language, provided they complete ten hours in one modern language.

‡Excepting Architectural Engineering. For that, see page 60.

**Civil Engineering students take Elementary Geology in place of Machine Construction.

SECOND SEMESTER, 17½ hours credit.

<i>Course number.</i>	<i>Subject.</i>	<i>Hours credit.</i>
Civil Engineering 2.....	Higher Surveying.....	3
Civil Engineering 4.....	Railway Surveying.....	2
Civil Engineering 5.....	Roads and Pavements.....	2
Mathematics 6 E.....	Calculus II.....	3
Physics 7b.....	General Physics.....	5
Mechanics 50a.....	Theoretical Mechanics.....	2
	Technical Report II.....	½

SUMMER WORK.

Civil Engineering 3.....	Field Work, 4 weeks.....	
--------------------------	--------------------------	--

JUNIOR YEAR.

FIRST SEMESTER, 18 hours credit.

Civil Engineering 55.....	Railway Surveying.....	4
Civil Engineering 54.....	Roads and Pavements Lab.....	1
Mechanics 50b.....	Theoretical Mechanics.....	3
Chemistry 2.....	Advanced Inorganic Chemistry.....	4
English 59.....	Advanced Composition.....	3
Economics.....	Elementary Economics.....	3

SECOND SEMESTER, 17½ hours credit.

Electrical Engineering 60.....	Elements of Electrical Engineering.....	3
Mechanics 51.....	Strength of Materials.....	4
Mechanics 52.....	Testing Laboratory.....	1
Mechanics 53.....	Graphic Statics.....	2
Mechanics 55.....	Hydraulics.....	3
Mechanics 56.....	Hydraulic Laboratory.....	1
Chemistry 5 E.....	Engineering Chemistry.....	3
	Technical Report III.....	½

SENIOR YEAR.

FIRST SEMESTER, 18 hours credit

Civil Engineering 61.....	Stresses in Framed Structures.....	5
Civil Engineering 57.....	Advanced Railway Engineering.....	2
Civil Engineering 65.....	Reinforced Concrete.....	3
Civil Engineering 70.....	Water Supplies.....	3
Civil Engineering 80.....	Seminar.....	½
	Optional.....	3
Civil Engineering 90.....	Thesis.....	1
	Technical Report IV.....	½

SECOND SEMESTER, 17 hours credit

Civil Engineering 62.....	Bridge Design.....	4
Civil Engineering 71.....	Sewerage.....	2
Engineering 52.....	Industrial Administration.....	3
Civil Engineering 64.....	Masonry.....	3
Civil Engineering 66.....	Reinforced Concrete Design.....	1
	Optional.....	2
Civil Engineering 90.....	Thesis.....	2

One extended inspection trip is required during the Junior or the Senior year.

Hydraulic Option.

SENIOR YEAR.

FIRST SEMESTER, 18 hours credit.

Civil Engineering 61.....	Stresses in Framed Structures.....	5
Civil Engineering 65.....	Reinforced Concrete.....	3
Civil Engineering 70.....	Water Supplies.....	3
Mechanics 58.....	Hydraulic Power.....	3
Civil Engineering 57.....	Advanced Railway Engineering.....	2
Civil Engineering 90.....	Thesis.....	1
Civil Engineering 80.....	Seminar.....	½
	Technical Report.....	½

SECOND SEMESTER, 17 hours credit.

Civil Engineering 62.....	Bridge Design.....	4
Civil Engineering 66.....	Reinforced Concrete Design.....	1
Civil Engineering 64.....	Masonry.....	3
Civil Engineering 71.....	Sewerage.....	2
Civil Engineering 76.....	Irrigation and Drainage.....	2
Civil Engineering 90.....	Thesis.....	2
Industrial Engineering 52.....	Industrial Administration.....	3

Railway Engineering Option.**SENIOR YEAR.****FIRST SEMESTER, 18 hours credit.**

<i>Course number.</i>	<i>Subject.</i>	<i>Hours credit.</i>
Civil Engineering 61.....	Stresses in Framed Structures.....	5
Civil Engineering 57.....	Advanced Railway Engineering.....	2
Civil Engineering 65.....	Reinforced Concrete.....	3
Civil Engineering 70.....	Water Supplies.....	3
Civil Engineering 58.....	Railway Terminals and Signaling.....	2
Civil Engineering 90.....	Thesis.....	2
Civil Engineering 80.....	Seminar.....	$\frac{1}{2}$
	Technical Report IV.....	$\frac{1}{2}$

SECOND SEMESTER, 17 hours credit.

Civil Engineering 62.....	Bridge Design.....	4
Civil Engineering 71.....	Sewerage.....	2
Civil Engineering 64.....	Masonry.....	3
Civil Engineering 59.....	Railway Construction and Maintenance.....	3
Industrial Engineering 52.....	Industrial Administration.....	3
Civil Engineering 66.....	Reinforced Concrete Design.....	1
Civil Engineering 90.....	Thesis.....	1

Structural Engineering Option.**SENIOR YEAR.****FIRST SEMESTER, 18½ hours credit.**

Civil Engineering 61.....	Stresses in Framed Structures.....	5
Civil Engineering 57.....	Advanced Railway Engineering.....	2
Civil Engineering 65.....	Reinforced Concrete.....	3
Civil Engineering 70.....	Water Supplies.....	3
Mechanics 54.....	Engineering Materials.....	2
Civil Engineering 90.....	Thesis.....	2
Civil Engineering 80.....	Seminar.....	$\frac{1}{2}$
	Technical Report IV.....	$\frac{1}{2}$

SECOND SEMESTER, 17 hours credit.

Civil Engineering 62.....	Bridge Design.....	4
Civil Engineering 71.....	Sewerage.....	2
Civil Engineering 64.....	Masonry.....	3
Civil Engineering 67.....	Higher Structures.....	3
Industrial Engineering 52.....	Industrial Administration.....	3
Civil Engineering 66.....	Reinforced Concrete Design.....	1
Civil Engineering 90.....	Thesis.....	1

Municipal and Sanitary Option.**JUNIOR YEAR.****FIRST SEMESTER, 18 hours credit.**

Civil Engineering 74.....	Sanitary Science.....	2
Mechanics 50b.....	Theoretical Mechanics.....	3
Chemistry 2.....	Advanced Inorganic Chemistry.....	4
English 59.....	Advanced Composition.....	3
Electrical Engineering 60.....	Electrical Engineering.....	3
Bacteriology 53 E.....	Sanitary Water Analysis.....	3

SECOND SEMESTER, 18½ hours credit.

Civil Engineering 75.....	Waste and Garbage Disposal.....	1
Mechanics 53.....	Graphic Statics.....	2
Civil Engineering 52.....	City Planning.....	2
Mechanics 51.....	Strength of Materials.....	4
Mechanics 52.....	Testing Laboratory.....	1
Chemistry 3.....	Qualitative Analysis.....	4
Mechanics 55.....	Hydraulics.....	3
Mechanics 56.....	Hydraulic Laboratory.....	1
	Technical Report III.....	$\frac{1}{2}$

SENIOR YEAR.**FIRST SEMESTER, 17 hours credit.**

Civil Engineering 61.....	Stresses in Framed Structures.....	5
Civil Engineering 70.....	Water Supplies.....	3
Civil Engineering 65.....	Reinforced Concrete.....	3
Civil Engineering 90.....	Thesis.....	2
Chemistry 52 A.....	Water Analysis.....	3
Civil Engineering 80.....	Seminar.....	$\frac{1}{2}$
	Technical Report IV.....	$\frac{1}{2}$

SECOND SEMESTER, 17 hours credit.

<i>Course number.</i>	<i>Subject.</i>	<i>Hours credit.</i>
Industrial Engineering 52.....	Industrial Administration.....	3
Civil Engineering 71.....	Sewerage.....	2
Civil Engineering 62 A.....	Structural Design.....	3
Civil Engineering 72.....	Advanced Sanitary Engineering.....	4
Civil Engineering 64.....	Masonry.....	3
Civil Engineering 66.....	Reinforced Concrete Design.....	1
Civil Engineering 90.....	Thesis.....	1

One extended inspection trip is required during the Junior or the Senior year.

ELECTRICAL ENGINEERING.

SOPHOMORE YEAR.

FIRST SEMESTER, 17½ hours credit.

Mathematics 5 E.....	Calculus I.....	5
Physics 7a.....	General Physics.....	5
Chemistry 2.....	Advanced Inorganic Chemistry.....	4
Machine Construction 3.....	Forging.....	1
Mechanical Engineering 4.....	Steam Machinery.....	2
	Technical Report I.....	½

SECOND SEMESTER, 18 hours credit.

Electrical Engineering 50.....	Dynamo Machinery.....	3
Electrical Engineering 54.....	Electrical Laboratory.....	1½
Mathematics 6E.....	Calculus II.....	3
Physics 7b.....	General Physics.....	5
Chemistry 3.....	Qualitative Analysis.....	4
Machine Construction 5.....	Bench Work.....	1
	Technical Report II.....	½

JUNIOR YEAR.

FIRST SEMESTER, 18 hours credit.

Electrical Engineering 51.....	Theory of Alternating Currents.....	4
Mechanics 50.....	Mechanics.....	5
Physics 52.....	Theory of Electricity.....	3
Physics 56.....	Electrical Measurements I.....	1½
Mechanical Engineering 52.....	Heat Engine Theory.....	3
Machine Construction 6.....	Machine Tool Work I.....	1
	Technical Report III.....	½

SECOND SEMESTER, 18 hours credit.

Electrical Engineering 52.....	Advanced Dynamo Machinery.....	4
Electrical Engineering 55.....	Electrical Laboratory.....	1½
Mechanical Engineering 53.....	Machine Design II.....	3
Mechanics 51.....	Strength of Materials.....	4
Mechanics 52.....	Testing Laboratory.....	1
Economics 1 E.....	Elements of Economics.....	3
Physics 56.....	Electrical Measurements II.....	1½

SENIOR YEAR.

FIRST SEMESTER, 17½ hours credit.

Electrical Engineering 62.....	Central Stations.....	3
Electrical Engineering 56.....	Advanced Electrical Laboratory.....	1½
Electrical Engineering 57.....	Illuminating Engineering.....	3
Electrical Engineering 58.....	Electrical Power Transmission.....	4
Mechanical Engineering 65.....	Power Laboratory.....	1½
English 59.....	Advanced Composition.....	3
	Thesis.....	1
	Technical Report IV.....	½

SECOND SEMESTER, 17 hours credit.

Electrical Engineering 61.....	Thesis.....	3
Industrial Engineering 52.....	Industrial Administration.....	3
Civil Engineering 50.....	Surveying.....	3
Chemistry 70.....	Physical Chemistry; Electro.....	5
	Optional.....	3

One extended inspection trip is required during the Junior or Senior year.

MECHANICAL ENGINEERING.

SOPHOMORE YEAR.

FIRST SEMESTER, 17½ hours credit.

<i>Course number.</i>	<i>Subject.</i>	<i>Hours credit.</i>
Mechanical Engineering 2.....	Mechanism.....	2
Mechanical Engineering 6.....	Steam Engineering.....	4
Mathematics 5 E.....	Calculus I.....	5
Chemistry 2.....	Advanced Inorganic Chemistry.....	4
Machine Construction 3.....	Forging.....	1
Machine Construction 5.....	Bench Work.....	1
	Technical Report I.....	½

SECOND SEMESTER, 18½ hours credit.

Mathematics 6 E.....	Calculus II.....	3
Physics 7a.....	General Physics.....	5
Chemistry 5 E.....	Engineering Chemistry.....	3
Civil Engineering 50.....	Surveying.....	3
Machine Construction 6.....	Machine Tool Work I.....	1
Economics 1 E.....	Elementary Economics.....	3
	Technical Report II.....	½

JUNIOR YEAR.

FIRST SEMESTER, 17½ hours credit.

Mechanical Engineering 51.....	Thermodynamics.....	3
Metallurgy 90.....	Metallurgy I.....	3
Physics 7b.....	General Physics.....	5
Mechanics 50.....	Mechanics.....	5
Machine Construction 7.....	Machine Tool Work II.....	1
	Technical Report.....	½

SECOND SEMESTER, 18½ hours credit.

Mechanical Engineering 60.....	Automotive Engineering.....	3
Mechanical Engineering 50.....	Machine Design II.....	5
Mechanical Engineering 64.....	Mechanical Engineering Laboratory.....	1
Mechanics 51.....	Strength of Materials.....	4
Mechanics 52.....	Testing Laboratory.....	1
English 59.....	Advanced Composition.....	3
Machine Construction 8.....	Advanced Machine Shop Practice.....	1
	Technical Report.....	½

SUMMER WORK.

Mechanical Engineering 68.....	Summer Vacation Work.....	
--------------------------------	---------------------------	--

SENIOR YEAR.

FIRST SEMESTER, 17½ hours credit.

Mechanical Engineering 56.....	Motive Power Machinery.....	3
Mechanics 55.....	Hydraulics.....	3
Mechanics 56.....	Hydraulic Laboratory.....	1
Industrial Engineering 51.....	Industrial Engineering II.....	3
Electrical Engineering 50.....	Dynamo Machinery.....	3
Electrical Engineering 54.....	Electrical Laboratory.....	1½
	Option (see below).....	3

SECOND SEMESTER, 16 hours credit.

Mechanical Engineering 66.....	Heat Engine Laboratory.....	1½
Mechanical Engineering 54.....	Heating, Ventilation and Refrigerating.....	2
Industrial Engineering 52.....	Industrial Administration.....	3
Electrical Engineering 53.....	Alternating Currents.....	3
Electrical Engineering 55.....	Electrical Laboratory.....	1½
	Option (see below).....	5

Options.

Mechanical Engineering 58.....	Gas Engine and Compressor Design.....	3
Mechanics 58.....	Hydraulic Power.....	3
Mechanical Engineering 67.....	Thesis.....	3
Mechanical Engineering 57.....	Steam Engine and Turbine Design.....	3
Electrical Engineering 62.....	Central Stations.....	3
Mechanical Engineering 61.....	Structural Design.....	2
Industrial Engineering 50.....	Manufacturing Costs.....	2

One extended inspection trip required during the Senior or Junior year.

MINING ENGINEERING.

SOPHOMORE YEAR.

FIRST SEMESTER, 18½ or 19½ hours credit.

Course number.	Subject.	Hours credit.
Mathematics 5 E.....	Calculus I.....	5
Geology 2.....	Elementary Geology.....	3
Geology 3.....	Introductory Historical Geology.....	2
Chemistry 2.....	Advanced Inorganic Chemistry.....	3
	Chemistry 2.....	2
Civil Engineering 1.....	Elementary Surveying.....	1
	Field Surveying.....	2
	Technical Report I.....	½
Optional: Mechanical Engineering I.....	Machine Design.....	1

SECOND SEMESTER, 17½ hours credit.

Mining Engineering 50.....	Mine Surveying.....	1
Mining Engineering 1 or 68.....	Elements of mining.....	3
Geology 31.....	Mineralogy I.....	5
Chemistry 3.....	Qualitative Analysis.....	2
	Qualitative Laboratory.....	3
Civil Engineering 2.....	Higher Surveying.....	1
	Field Surveying.....	2
	Technical Report II.....	½

SUMMER WORK.

Civil Engineering 3.....	Field Work, 2 weeks.....	
--------------------------	--------------------------	--

JUNIOR YEAR.

FIRST SEMESTER, 17½ hours credit.

Mining Engineering 54.....	Metal Mining.....	2
Geology 72.....	Economic Geology I.....	5
Physics 7a.....	General Physics.....	5
Chemistry 51.....	Quantitative Analysis.....	5
	Technical Report III.....	½

SECOND SEMESTER, 18 or 19 hours credit.

Mining Engineering 52.....	Mining Law.....	1
English 59.....	Advanced Composition.....	3
Mechanics 50.....	Mechanics.....	5
Physics 7b.....	Physics.....	4
	Physics Laboratory.....	1
Metallurgy 53.....	Assaying.....	5

SENIOR YEAR.

FIRST SEMESTER, 17½ hours credit.

Mining Engineering 53.....	Ore Dressing I.....	1
	Ore Dressing Laboratory.....	1
Mining Engineering 56.....	Mine, Mill and Plant Design.....	1
	Designing Drafting.....	1
Mining Engineering 64.....	Mining Engineering.....	3
Mechanics 51.....	Strength of Materials.....	4
	Testing Laboratory.....	1
Metallurgy 93 or.....	{ General Metallurgy, or.....	2
Mining Engineering 69 or.....		
Mining Engineering 61.....		
Economics 1 E.....	Coal Mining I.....	2
	Elements of Economics.....	3
	Technical Report IV.....	½

SECOND SEMESTER, 18 hours credit.

Mining Engineering 55.....	Mine Hydraulics.....	2
Mining Engineering 57.....	Mine Administration.....	1
Mining Engineering 58 or.....	Ore Dressing II or.....	4
Mining Engineering 62.....	Coal Mining II.....	3
	Optional.....	2
Mining Engineering 59.....	Mine Examination and Reports.....	2
Mining Engineering 60.....	Thesis.....	2
Mechanical Engineering 4.....	Steam Engineering.....	2
Metallurgy 91 or.....	{ Metallurgy II or.....	3
Mining Engineering 70.....		
Industrial Engineering 52.....	Coal Preparation.....	2
	Industrial Administration.....	2

One inspection trip is required during the Sophomore or Junior year, and another in the Senior year.

NOTE.—In the Freshman year, mining engineers should take, during the first semester: Engineering Drawing 1 and 2, and during the second semester: Mach. C 3 and 5.

Total hours credit 142 or 143.

Ore Dressing Engineering Option.**SOPHOMORE YEAR.****FIRST SEMESTER, 18½ hours credit.**

<i>Course number.</i>	<i>Subject.</i>	<i>Hours credit.</i>
Mathematics 5 E.....	Calculus I.....	5
Geology 2.....	Elementary Geology.....	3
Geology 3.....	Introductory Historical Geology.....	2
Chemistry 2.....	Advanced Inorganic Chemistry.....	5
	Laboratory.....	
Mechanical Engineering 1.....	Machine Drafting.....	1
Machine Construction 5.....	Bench Work.....	1
Machine Construction 6.....	Machine Tool Work.....	1
	Technical Report I.....	½

SECOND SEMESTER, 18½ hours credit.

Geology 4.....	Field Geology.....	2
Physics 7a.....	General Physics.....	5
Chemistry 3.....	Qualitative Analysis.....	5
	Laboratory.....	
Geology 31.....	Mineralogy I.....	5
Machine Construction 3.....	Forging.....	1
	Technical Report II.....	½

JUNIOR YEAR.**FIRST SEMESTER, 19½ hours credit.**

Mining Engineering 53.....	Ore Dressing I.....	2
Chemistry 51.....	Quantitative Analysis.....	5
Mechanics 50.....	Mechanics.....	5
Physics 7b.....	Physics.....	5
Mining Engineering 69, or.....	Mining Geology.....	2
Geology 81.....	Petrology I.....	
	Technical Report III.....	½

SECOND SEMESTER, 17½ hours credit.

Mining Engineering 58.....	Ore Dressing II.....	4
Metallurgy 53.....	Assaying.....	5
Mechanics 51.....	Strength of Materials.....	4
Mechanics 52.....	Testing of Materials.....	1
Civil Engineering 50.....	Elementary Surveying.....	3
	Field.....	
	Technical Report IV.....	½

SENIOR YEAR.**FIRST SEMESTER, 17 hours credit.**

Mining Engineering 58.....	Ore Dressing III.....	4
Mining Engineering 56.....	Mine Plant and Mill Design I.....	2
Mining Engineering 54.....	Metal Mining.....	2
Electrical Engineering 60, or.....	Elements of Electrical Engineering, or.....	3
Mining Engineering 64.....	Mining Engineering.....	
Economics I E.....	Elements of Economics.....	3
English 59.....	Advanced Composition.....	3

SECOND SEMESTER, 18 hours credit.

Mining Engineering 63.....	Mine Plant and Mill Design II.....	3
Mining Engineering 55.....	Mining Hydraulics.....	2
Mining Engineering 59.....	Mining Examinations and Reports.....	2
Metallurgy 91.....	Metallurgy II.....	3
Mechanical Engineering 4.....	Steam Machinery.....	2
Industrial Engineering 52.....	Industrial Administration.....	3
Mining Engineering 57.....	Mine Administration.....	
	Thesis.....	3

One inspection trip is required during the Sophomore or Junior year, and another in the Senior year.

Total hour credits, 137.

NOTE.—In the Freshman year students should take in—

(a) *First Semester:*

Engineering Drawing 1.....	Free-hand and Mechanical Drawing.....	2
Machine Construction 1.....	Foundry Practice.....	1
Machine Construction 2.....	Pattern Making.....	1

(b) *Second Semester:*

Engineering Drawing 2.....	Machine Drawing.....	2
----------------------------	----------------------	---

Geological Engineering Option.

SOPHOMORE YEAR.

FIRST SEMESTER, 18½ hours credit.

<i>Course number.</i>	<i>Subject.</i>	<i>Hours credit.</i>
Geology 2.....	Elementary Geology.....	3
Geology 3.....	Introductory Historical Geology.....	2
Mathematics 5 E.....	Calculus I.....	5
Chemistry 2.....	Advanced Inorganic Chemistry.....	3
	Laboratory.....	2
Civil Engineering 1.....	Elementary Surveying.....	1
	Field Surveying.....	2
	Technical Report I.....	½

SECOND SEMESTER, 18½ hours credit.

Geology 4.....	Field Geology I.....	2
Geology 31.....	Mineralogy I.....	5
Chemistry 3.....	Qualitative Analysis.....	2
	Laboratory.....	3
Mining Engineering 68, or 1.....	Principles of Mining.....	3
Civil Engineering 2.....	Higher Surveying.....	1
	Field Surveying.....	2
	Technical Report II.....	½
Civil Engineering 3.....	Summer Field Work, 2 weeks.	

JUNIOR YEAR.

FIRST SEMESTER, 17½ hours credit.

Geology 50.....	Geologic and Topographic Maps.....	2
Geology 51.....	Geologic Processes.....	3
Geology 62.....	Invertebrate Paleontology I.....	5
Geology 81, or.....	Petrology I, or.....	2
Mining Engineering 69.....	Mining Geology.....	
Geology 82.....	Petrography.....	3
Mining Engineering 53.....	Ore Dressing I.....	1
	Ore Dressing Laboratory.....	1
	Technical Report III.....	½

SECOND SEMESTER 17 or 18 hours credit.

Geology 61.....	Historical Geology.....	5
Physics 7a.....	General Physics.....	4
	Physics Laboratory.....	1
Mining Engineering 52.....	Mining Law.....	1
Mining Engineering 58.....	Ore Dressing II.....	2
	Ore Dressing Laboratory.....	2
English 59.....	Advanced Composition.....	3

SENIOR YEAR.

FIRST SEMESTER, 15½ hours credit.

Geology 72.....	Economic Geology I.....	5
Mechanics 50.....	Mechanics.....	5
Economics 1 E.....	Elements of Economics.....	3
Optional:		
a. Chemistry 51.....	Quantitative Analysis.....	5
b. Mining Engineering 54.....	Metal Mining.....	2
c. Mining Engineering 69.....	Mining Geology.....	2
d. Options.....	(Courses as approved).....	5
	Technical Report IV.....	½

SECOND SEMESTER, 19 hours credit.

Geology 73.....	Economic Geology II.....	5
Mechanics 51.....	Strength of Materials.....	4
Mechanics 52.....	Testing of Materials.....	1
Mining Engineering 59.....	Mine Examination and Reports.....	2
Industrial Engineering 52.....	Industrial Administration.....	3
Optional:		
a. Metallurgy 53.....	Assaying.....	5
b. Metallurgy 91.....	Metallurgy II.....	3
c. Mining Engineering 60.....	Thesis.....	2
d. Geology.....	(Courses as approved).....	3 or 5

One extended inspection trip is required during the Junior or Senior year.

Options.

List from which to select optional courses in the department of geology, subject to approval.
(For description of courses see College and Graduate School):

<i>Course number.</i>	<i>Subject.</i>	<i>Hours credit.</i>
Geology 52.....	Field Geology II (Summer Session).....	6
Geology 53.....	Field Geology Reports.....	3
Geology 59.....	Geography and Geology of Kansas.....	2
Geology 63.....	Invertebrate Paleontology II.....	5
Geology 71.....	Structural and Dynamic Geology.....	5
Geology 74.....	Fuel Technology.....	2
Geology 80.....	Mineralogy II.....	5
Geology 83.....	Petrology.....	5

NOTE.—In the Freshman year students should take—

<i>a. In the First Semester:</i>		
Engineering Drawing 1 and 2.....	Machine Drawing.....	4
<i>b. In the Second Semester:</i>		
Machine Construction 3.....	Forging.....	1
Machine Construction 5.....	Bench Work.....	1

CHEMICAL AND METALLURGICAL ENGINEERING.

SOPHOMORE YEAR.

FIRST SEMESTER, 18½ hours credit.

Chemistry 2.....	Advanced Inorganic Chemistry.....	5
Mathematics 5 E.....	Calculus I.....	5
Physics 7a.....	General Physics.....	5
Mechanical Engineering 8.....	Machine Elements.....	2
Machine Construction 5.....	Bench Work.....	1
	Technical Report I.....	½

SECOND SEMESTER, 16½ hours credit.

Chemistry 3.....	Qualitative Analysis.....	5
Physics 7b.....	General Physics.....	5
Geology 31.....	Mineralogy I.....	5
Machine Construction 3.....	Forging.....	1
	Technical Report II.....	½

Chemical Engineering Option.

JUNIOR YEAR.

FIRST SEMESTER, 18½ hours credit.

Chemistry 62.....	Organic Chemistry I.....	5
Chemistry 51.....	Quantitative Analysis I.....	5
Mechanics 50.....	General Mechanics.....	5
English 59.....	Advanced Composition.....	3
	Technical Report III.....	½

SECOND SEMESTER, 18 hours credit.

Chemistry 80.....	Industrial Chemistry; Inorganic.....	3
Chemistry 52.....	Quantitative II.....	5
Chemistry 63.....	Organic Chemistry II.....	5
Mechanics 51.....	Strength of Materials.....	4
Mechanics 52.....	Testing Laboratory.....	1

SENIOR YEAR.

FIRST SEMESTER, 19½ hours credit.

Chemistry 81.....	Industrial Chemistry; Organic.....	3
Chemistry 71.....	Physical Chemistry; General.....	5
Metallurgy 90.....	Metallurgy I.....	3
Metallurgy 93.....	General Metallurgy.....	2
Economics 1 E.....	Elements of Economics.....	3
	Optional from Chemistry Department.....	3
	3 hours, or.....	
	Thesis 3 hours.....	½
	Technical Report IV.....	

SECOND SEMESTER, 17 hours credit.

Chemistry 70.....	Physical Chemistry; Electro.....	5
Metallurgy 53.....	Assaying.....	3
Metallurgy 91.....	Metallurgy II.....	3
Industrial Engineering 52.....	Industrial Administration.....	3
	Thesis.....	3

One extended inspection trip is required during the Senior year.

Metallurgical Engineering Option.

JUNIOR YEAR.

FIRST SEMESTER, 18 hours credit.

<i>Course number.</i>	<i>Subject.</i>	<i>Hours credit.</i>
Metallurgy 90.....	Metallurgy I.....	3
Metallurgy 93.....	General Metallurgy.....	2
English 59.....	Advanced Composition I.....	3
Chemistry 51.....	Quantitative Analysis I.....	5
Mechanics 50.....	Mechanics.....	5

SECOND SEMESTER, 17½ hours credit.

Metallurgy 91.....	Metallurgy II.....	3
Metallurgy 92.....	Metallurgy Laboratory.....	2
Chemistry 52.....	Quantitative Analysis II.....	5
Mechanics 51.....	Strength of Materials.....	4
Mechanics 52.....	Testing Laboratory.....	1
Mechanical Engineering 4.....	Steam Machinery.....	2
	Technical Report III.....	½

SENIOR YEAR.

FIRST SEMESTER, 18½ hours credit.

Chemistry 70.....	Physical Chemistry I.....	5
Geology.....	Elementary Geology.....	3
Electrical Engineering 60.....	Elements of Electrical Engineering.....	3
Mining Engineering 53.....	Ore Dressing I.....	2
Mining Engineering 56.....	Mine Plant and Mill Design I.....	2
Economics 1 E.....	Elements of Economics.....	3
	Technical Report IV.....	½

SECOND SEMESTER, 19 hours credit.

Chemistry 61.....	Organic Chemistry.....	5
Metallurgy 53.....	Assaying.....	5
Metallurgy 95.....	Metallography.....	2
Mining Engineering 58.....	Ore Dressing II.....	4
Mining Engineering 55.....	Mining Hydraulics.....	2
Industrial Engineering 52.....	Industrial Administration.....	3

ARCHITECTURAL ENGINEERING.

FRESHMAN YEAR.

FIRST SEMESTER, 17 hours credit.

Architecture 1.....	Free-hand Drawing I.....	2
Mathematics 2.....	College Algebra.....	3
Mathematics 3.....	Plane Trigonometry.....	2
German, French, or Spanish*.....	(Course as approved).....	5
English 1 E.....	Rhetoric I.....	3
Engineering Drawing 4.....	Mechanical Drawing.....	2
Engineering 1.....	Engineering Lectures.....	
Physical Education 1.....	Gymnasium, 3 periods per week.	

SECOND SEMESTER, 17 hours credit.

Architecture 2.....	Free-hand Drawing II.....	2
Mathematics 4 E.....	Analytic Geometry and Theory of Equations.....	5
German, French, or Spanish.....	(Course as approved).....	5
English 2 E.....	Rhetoric II.....	2
Engineering Drawing 3.....	Descriptive Geometry.....	3
Physical Education 2.....	Gymnasium, 3 periods per week.	

SOPHOMORE YEAR.

FIRST SEMESTER, 18½ hours credit.

Architecture 7.....	Free-hand Drawing III.....	2
Architecture 5.....	History of Architecture I.....	2
Architecture 9.....	Shades and Shadows.....	1
Architecture 3.....	Architectural Design I.....	3
Architecture 12.....	Theory of Architecture.....	2
Mathematics 5 E.....	Calculus I.....	5
Physics 7a.....	General Physics.....	5
	Technical Report I.....	½

SECOND SEMESTER, 17½ hours credit.

<i>Course number.</i>	<i>Subject.</i>	<i>Hours credit.</i>
Architecture 8.....	Free-hand Drawing IV.....	2
Architecture 6.....	History of Architecture II.....	2
Architecture 4.....	Architectural Design II.....	3
Architecture 12.....	Theory of Architecture.....	2
Mathematics 6 E.....	Calculus II.....	2
Physics 7b.....	General Physics.....	5
	Technical Report II.....	½

JUNIOR YEAR.

FIRST SEMESTER, 18½ hours credit.

Architecture 51.....	Architectural Design III.....	2
Architecture 57.....	History of Architecture III.....	2
Architecture 59.....	Building Construction I.....	3
Mechanics 50.....	Mechanics.....	5
Chemistry 2.....	Advanced Inorganic Chemistry.....	4
	Technical Report III.....	½

SECOND SEMESTER, 17½ hours credit.

Architecture 52.....	Architectural Design IV.....	4
Architecture 58.....	History of Architecture IV.....	2
Architecture 60.....	Building Construction II.....	3
Architecture 62.....	Building Sanitation.....	1
Mechanics 1.....	Strength of Materials.....	4
Mechanics 52.....	Testing Laboratory.....	1
Mechanics 53.....	Graphic Statics.....	2
	Technical Report IV.....	½

SENIOR YEAR.

FIRST SEMESTER, 17 hours credit.

Architecture 67.....	Office Practice and Specifications.....	3
Civil Engineering 61.....	Stresses in Framed Structures.....	5
Civil Engineering 65.....	Reinforced Concrete.....	3
Economics 1 E.....	Elements of Economics.....	3
English 59.....	Advanced Composition.....	3

SECOND SEMESTER, 17 hours credit.

Industrial Engineering 52.....	Industrial Administration.....	3
Civil Engineering 50.....	Surveying.....	3
Mechanics 57.....	Hydraulic Cement.....	1
Mechanical Engineering 54.....	Heating and Ventilating.....	2
Electrical Engineering 64.....	Electrical Engineering for Architects.....	2
	Thesis.....	3

One extended inspection trip is required during the Junior or Senior year.

ARCHITECTURE.

SOPHOMORE YEAR.

FIRST SEMESTER, 18½ hours credit.

Architecture 7.....	Free-hand Drawing III.....	2
Architecture 5.....	History of Architecture I.....	2
Architecture 9.....	Shades and Shadows.....	1
Architecture 3.....	Architectural Design I.....	3
Mathematics 5 E.....	Calculus I.....	5
Physics 7a.....	General Physics.....	5
	Technical Report I.....	½

SECOND SEMESTER, 17½ hours credit.

Architecture 8.....	Free-hand Drawing IV.....	2
Architecture 6.....	History of Architecture II.....	2
Architecture 14.....	Domestic Architecture.....	2
Architecture 12.....	Theory of Architecture.....	2
Architecture 4.....	Architectural Design II.....	3
Architecture 10.....	Perspective.....	1
Physics 7b.....	General Physics.....	5
	Technical Report II.....	½

JUNIOR YEAR.

FIRST SEMESTER, 17½ hours credit.

Architecture 63.....	Free-hand Drawing V.....	2
Architecture 57.....	History of Architecture III.....	2
Architecture 59.....	Building Construction I.....	3
Architecture 51.....	Architectural Design III.....	5
Mechanics 50.....	Mechanics.....	5
	Technical Report III.....	½

SECOND SEMESTER, 18½ hours credit.

<i>Course number.</i>	<i>Subject.</i>	<i>Hours credit.</i>
Architecture 64.....	Free-hand Drawing VI.....	2
Architecture 52.....	Architectural Design IV.....	5
Architecture 58.....	History of Architecture IV.....	2
Architecture 60.....	Building Construction II.....	3
Mechanics 51.....	Strength of Materials.....	4
Mechanics 53.....	Graphic Statics.....	2
	Technical Report IV.....	½

SENIOR YEAR.

FIRST SEMESTER, 17 hours credit.

Architecture 53.....	Architectural Design V.....	5
Architecture 61.....	History of Ornament.....	3
Architecture 67.....	Office Practice and Specifications.....	3
English 59.....	Advanced Composition.....	3
Economics 1 E.....	Elements of Economics.....	3

SECOND SEMESTER, 16 hours credit.

Architecture 54.....	Architectural Design VI.....	5
Architecture 62.....	Building Sanitation.....	1
Industrial Engineering 52.....	Industrial Administration.....	3
Mechanical Engineering 54.....	Heating and Ventilating.....	2
Electrical Engineering 64.....	Electrical Engineering for Architects.....	2
	Thesis.....	3

ENGINEERING AND ADMINISTRATIVE SCIENCE.

Industrial Engineering Option.

Freshman year same as Mechanical Engineering.

SOPHOMORE YEAR.

FIRST SEMESTER, 18½ hours credit.

Economics 1 E.....	Elements of Economics.....	3
Mechanical Engineering 2.....	Mechanism.....	2
Mechanical Engineering 4.....	Steam Machinery.....	2
Mathematics 5 E.....	Calculus I.....	5
Physics 7a.....	General Physics.....	5
Machine Construction 3.....	Forging.....	1
	Technical Report I.....	½

SECOND SEMESTER, 16½ hours credit.

Economics 3.....	Economic and Financial History of the United States.....	3
Mathematics 6 E.....	Calculus II.....	3
Physics 7b.....	General Physics.....	5
Civil Engineering 50.....	Elementary Surveying.....	3
Machine Construction 5.....	Bench Work.....	1
Machine Construction 6.....	Machine Tool Work I.....	1
	Technical Report II.....	½

JUNIOR YEAR.

FIRST SEMESTER, 17½ hours credit.

Industrial Engineering 50.....	Manufacturing Costs.....	2
Economics 50.....	Money.....	3
Mechanical Engineering 51.....	Thermodynamics.....	3
Chemistry 2.....	Inorganic Chemistry.....	4
Mechanics 50.....	Mechanics.....	5
	Technical Report.....	½

SECOND SEMESTER, 17 hours credit.

Economics 4.....	Commercial Geography.....	3
Mechanical Engineering 50.....	Machine Design II.....	5
Chemistry 5.....	Engineering Chemistry.....	3
Mechanics 51.....	Strength of Materials.....	4
Mechanics 52.....	Testing of Materials.....	1
Machine Construction 7.....	Machine Tool Work II.....	1

SENIOR YEAR.

FIRST SEMESTER, 17½ hours credit.

<i>Course number.</i>	<i>Subject.</i>	<i>Hours credit.</i>
Industrial Engineering 51.....	Industrial Engineering II.....	3
Economics 64.....	Accounting I.....	3
Economics 70.....	Labor Problems.....	2
Mechanical Engineering 56.....	Motive Power Machinery.....	3
Electrical Engineering 60.....	Elements of Electrical Engineering.....	3
	Optional.....	3
	Technical Report IV.....	½

SECOND SEMESTER, 17 hours credit.

Industrial Engineering 52.....	Industrial Administration.....	3
Economics 65.....	Accounting II.....	3
Economics 51.....	Banking.....	3
Economics 56.....	Railway Rates and Regulation.....	2
	Mechanical Engineering Option.....	3
English 59.....	Advanced English Composition.....	3

Transportation and Construction Option.

Freshman year same as Civil Engineering.

SOPHOMORE YEAR.

FIRST SEMESTER, 16½ hours credit.

Civil Engineering 1.....	Plane Surveying.....	3
Mathematics 5 E.....	Calculus I.....	5
Physics 7a.....	General Physics.....	5
Mechanical Engineering 5.....	Engines and Boilers.....	3
	Technical Report I.....	½

SECOND Semester, 17½ hours credit.

Economics 1 E.....	Elements of Economics.....	3
Civil Engineering 4.....	Railway Surveying.....	2
Mathematics 6 E.....	Calculus II.....	3
Physics 7b.....	General Physics.....	5
Mechanics 50a.....	Analytical Mechanics.....	2
Public Speaking 50.....	Extempore Speaking I.....	2
	Technical Report II.....	½

JUNIOR YEAR.

FIRST SEMESTER, 17½ hours credit.

Economics 61.....	Public Finance I.....	3
Economics 3.....	Economic History of the United States.....	3
Civil Engineering 55.....	Railway Surveying.....	4
Mechanics 50b.....	Theoretical Mechanics.....	3
Chemistry 2.....	Inorganic Chemistry.....	4
	Technical Report III.....	½

SECOND SEMESTER, 18 hour credit.

Economics 4.....	Commercial Geography.....	3
Mechanics 55.....	Hydraulics.....	3
Mechanics 51.....	Strength of Materials.....	4
Mechanics 52.....	Testing Laboratory.....	1
Mechanics 56.....	Hydraulic Laboratory.....	1
English 59.....	Advanced Composition.....	3
Chemistry 5 E.....	Engineering Chemistry.....	3

SENIOR YEAR.

FIRST SEMESTER, 18½ hours credit.

Economics 70.....	Labor Problems.....	2
Economics 64.....	Accounting I.....	3
Civil Engineering 70.....	Water Supplies.....	3
Civil Engineering 65.....	Reinforced Concrete.....	3
Civil Engineering 58.....	Railway Terminals and Signaling.....	2
Civil Engineering 57.....	Advanced Railway Engineering.....	2
Electrical Engineering 60.....	Elements of Electrical Engineering.....	3
	Technical Report IV.....	½

SECOND SEMESTER, 18 hours credit.

Industrial Engineering 52.....	Industrial Administration.....	3
Economics 57.....	Corporations and Trusts.....	3
Economics 65.....	Accounting II.....	3
Civil Engineering 52.....	City Planning.....	2
Civil Engineering 64.....	Masonry Construction.....	3
Civil Engineering 71.....	Sewerage.....	2
Civil Engineering 167.....	Highway Transport.....	2

CURRICULUM.

For the Five-year Schedules Leading to the Degree of Bachelor of Science.

REQUIREMENTS FOR ADMISSION.

To be admitted to these courses of study the student must have completed all of the requirements for admission and thirty hours of work in the College. His work should have been selected so that at the close of the year in the College he will have completed, in entrance work and in College work combined, the following specified hours (it being understood that one complete entrance unit equals five hours work in the University):

- 20 hours in Mathematics.
- 20 hours in English.
- 20 hours in Foreign Language.
- 5 hours in Physics or Chemistry.

If his work has not been selected to fulfill these requirements, the student will be required to make up all deficiencies.

WORK REQUIRED FOR GRADUATION.

Students who have completed the year of College work will proceed with the engineering work in substantially the same order as indicated for the four-year students. A total of 160 hours in the five years is required. The foreign language requirement is greater than for the four-year students, 25 hours being required in entrance and University work combined, of which 13 hours shall be in one modern language.

Schedules are not printed in detail, but each student can take the corresponding four-year schedule as his guide. In the place of those courses which his previous credits in the College cover, he will be allowed freedom of option in selecting work to make up the required number of hours for graduation.

EQUIPMENT.

The School of Engineering is a part of the University; hence the entire equipment of the University is also equipment of the School of Engineering in all things in which engineering students are concerned. The work of the Engineering School which is common to several schools of the University, such as mathematics, physics, chemistry, languages, etc., is carried on to some extent in buildings and by departments of instruction not exclusively for engineering students; such work of the School as is technical and exclusively engineering in character is carried on by departments of instruction primarily for engineering students and largely in buildings erected for the special work of the School. Below is described that part of the general equipment of the University which pertains chiefly to the work of this School. For other equipment, see "The College" and descriptions of other schools of the University.

BUILDINGS.

The buildings erected exclusively for engineering work are Marvin Hall, the mechanical laboratory in connection with the power plant, and the Fowler Shops. The work in mining and geology is provided for in Haworth Hall, and courses in chemical and metallurgical subjects are conducted in the chemistry building. For description of the buildings, see the General Information section.

LIBRARIES.

The general University library is available for use of engineering students. The engineering library contains the books, periodicals, pamphlets, maps, and manuscripts pertaining to the several branches of engineering and architecture, excepting mining and chemical. The departmental libraries in chemistry, geology and mining, physics and astronomy, and mathematics, contain the material pertaining to those branches. Large plates and other illustrative material for the use of architecture students are in the reading room of the architecture department.

DRAWING ROOMS.

Drawing rooms in Marvin Hall, furnished with individual tables containing drawers for each student's outfit, cabinets for drawing boards, etc., are provided for the work in general mechanical drawing, machine design, bridge and structural design, and architecture. Drawing rooms in Haworth Hall are similarly provided for the work in mining engineering.

On the walls and in print cases are many photographs and drawings of machines and structures, and blue prints of working drawings for bridges, railroad structures, sewers, waterworks, mine plants, buildings, etc. These are employed in the teaching of design in corresponding courses, as models or illustrative material.

LABORATORIES.

Care has been taken to provide laboratory equipment of maximum effectiveness in the teaching of undergraduates. In certain of the laboratories, moreover, the means are at hand for carrying on more advanced research work.

For the work in pure science the laboratories of the College departments of physics, chemistry, geology and bacteriology are available. In this way engineering students are afforded all necessary opportunities for gaining familiarity with the most approved methods of carrying on work in the respective branches. Chemical-engineering students continue for a much longer time in the use of the apparatus provided in the department of chemistry than do the other students. Similarly, electrical-engineering students continue in the use of the finer types of electrical measuring instruments, which are provided in the well-equipped laboratories of the physics department. Mining-engineering students, and those following the civil-engineering option in sanitary and municipal work, also draw largely upon the pure-science laboratories, the former mainly in the lines of metallurgy and chemistry, the latter in the chemical and bacteriological examination of water and sewage.

The applied science work is done in the laboratories of the School of Engineering itself. Certain of these are used by all, or nearly all, students, while others are for work of a more specialized character.

In the first group there are the following:

The strength of materials laboratory for the study of the properties of building materials. This is equipped with three small capacity tension-compression machines, a torsion machine, and one 200,000 pound standard testing machine fitted to test full size beams and columns.

The hydraulics laboratory which is equipped for the usual work in measurement of flow of water over weirs and through pipes; equipment for measuring performance of pumps, water motors, etc.

The field surveying outfit is a representative one containing an adequate number of instruments of the usual kinds employed in topographic and railway surveying.

The dynamo machine laboratory is used by students of three departments and is well equipped with representative kinds of electrical machinery. It is especially well equipped with instrument standardizing apparatus.

The steam and gas engine laboratory is used by nearly all students. It is equipped with a variety of types of steam, gas and gasoline engines, and with the many small instruments employed in heat engine work.

Fowler Shops, otherwise known as machine construction laboratory, is equipped for carrying on all of the ordinary processes employed in machine construction. All excepting civil engineering students take work here. The aim is not the acquiring of manipulative skill by students, but rather the teaching of standard processes and methods. Standard makes of machines and other tools are employed.

The second group of laboratory equipment is that applied to special problems in connection with the various lines of specialized work. Each of the departments is equipped in this way, all in very satisfactory measure with respect to undergraduate student work.

The civil-engineering department is equipped to give special work for those engaged in the advanced branches of railway surveying, and for the investigation of road materials and of cement. It owns a complete outfit for its work carried on during the summer surveying-camp period.

The department of mechanics is equipped to carry on special investigations in reinforced concrete, and with various other forms of material employed in engineering structures.

The electrical-engineering department is provided with necessary equipment for carrying on research work with alternating-current machinery, in telephony, and with electrical measuring instruments.

The mechanical-engineering department, in connection with the University power plant, is able to carry on many lines of investigation with steam-power apparatus, with gas engines, with refrigerating apparatus, and in the study of fuels and lubricating oils.

The mining engineering laboratories are equipped for large-scale tests on various ores, for washing coal in ten-ton lots, for the study of fuels and of coal-mine explosions. Students are given mine-surveying practice in the state mine at Lansing and in the tunnels of the University heating system.

In the lines of applied chemistry and metallurgy the equipment is of high grade and well adapted to the carrying on of work characteristics of the chemical industries as well as for the study of special metals and the analytical work on ores and the many other forms of material with which the industrial chemist must deal.

In the rooms of the architectural-engineering department are deposited many illustrative drawings, plates, and lantern slides which are of service in the study of architectural forms and in creative designing work.

DESCRIPTION OF COURSES.

ARCHITECTURE.

Professors: GOLDSMITH, GRIFFITH, HEKKING.

Assistant Professor: BAILEY (LAF.).

Assistant Instructor: DAWSON.

1.—FREE-HAND DRAWING I. Two hours credit. First semester, M. W. F., 1 to 4. Charcoal and pencil drawing from the cast. Griffith.

2.—FREE-HAND DRAWING II. Two hours credit. Second semester, six hours. Theory of perspective, free-hand perspective, shades and shadows. Griffith.

3.—ARCHITECTURAL DESIGN I. Three hours credit. First semester, nine hours. A study of the elementary architectural forms and fundamental construction features, their employment in architectural composition, the classic orders. Drafting-room work and informal lectures. Bailey.

4.—ARCHITECTURAL DESIGN II. Three hours credit. Second semester, nine hours. Continuation of course 3, the application of the orders in elementary design. A study and analysis of architectural composition based on the orders, designed to train the student in the æsthetics of architecture and the fundamentals of design. Drafting-room work and informal lectures. Bailey.

5.—HISTORY OF ARCHITECTURE I. Two hours credit. First semester, three hours. An analytical study of architectural development of the historic styles, explaining the underlying principles of construction and design, influence of materials, and effects of religious and political conditions. The first semester will include the architecture of Egypt, Assyria, Persia, Greece, and Rome. Illustrated lectures, reading, and sketching. Goldsmith.

6.—HISTORY OF ARCHITECTURE II. Two hours credit. Second semester, three hours. Continuation of course 5, from the close of Roman supremacy through the periods of Byzantine, Romanesque and Gothic development, and the Renaissance. Illustrated lectures, reading, sketching, and research. Goldsmith.

7.—FREE-HAND DRAWING III. Two hours credit. First semester, M. W. F., 8:30-10:30. Charcoal drawing from life model. Hekking.

8.—FREE-HAND DRAWING IV. Two hours credit. Second semester, M. W. F., 8:30-10:30. Pencil drawing and outdoor sketching. Hekking.

9.—SHADES AND SHADOWS. One hour credit. First semester, three hours. Application of the principles of descriptive geometry in casting conventional shadows. Conventional rendering of architectural subjects. Dawson.

10.—PERSPECTIVE. One hour credit. Second semester, three hours. Mechanical methods of architectural perspective. Dawson.

12.—THEORY OF ARCHITECTURE. Two hours credit. Second semester. A study of the elements of architecture and theories and principles of architectural composition. Lectures, reading and drawing. Goldsmith.

14.—DOMESTIC ARCHITECTURE. Two hours credit, for architecture only. Second semester, two hours. An analytical study of the requirements of domestic architecture; preliminary studies of various types of house plans. Lectures, reading and drawing. Goldsmith.

51.—ARCHITECTURAL DESIGN III. Five hours credit in architecture; four hours credit in architectural engineering. First semester. Prob-

lems in theoretical and constructive design. Beaux-Arts Institute Class B Projects. Architecture credit also requires Beaux-Arts Esquisses-esquisses. Bailey.

52.—ARCHITECTURAL DESIGN IV. Five hours credit in architecture; four hours credit in architectural engineering. Second semester. Continuation of course 50. Bailey.

53.—ARCHITECTURAL DESIGN V. Five hours credit, for architecture only. First semester. Continuation of course 51, and leading to Beaux-Arts Institute Class A Projects. Bailey.

54.—ARCHITECTURAL DESIGN VI. Five hours credit, for architecture only. Second semester. Continuation of course 52. Students having earned sufficient credits in Beaux-Arts Class A Projects, combining with this course the time allowed for thesis, securing credit in both courses. Bailey.

56.—THESIS. Three hours credit. Second semester. An extended problem in design requiring complete plans, elevations, section and construction details, with outline specifications of building materials and methods. The subject may be chosen by the student with the approval of the professor of architecture. Students in architecture having earned sufficient credits in Beaux-Arts Institute design problems may take Beaux-Arts Class A Projects for course 54 and course 56 combined, securing credit in both courses. Goldsmith, Bailey.

57.—HISTORY OF ARCHITECTURE III. Two hours credit. First semester, two hours. Continuation of course 6. The Renaissance. Illustrated lectures, reading, sketching and research. Goldsmith.

58.—HISTORY OF ARCHITECTURE IV. Two hours credit. Second semester, two hours. Continuation of course 57. Classic and gothic revivals; modern architecture in Europe and the United States. Illustrated lectures, reading, sketching and research. Goldsmith.

59.—BUILDING CONSTRUCTION I. Three hours credit. First semester, three hours. A study of the principles of wooden construction and their application in structural design, working drawings, and details. This course considers building and finishing woods, framing of wooden buildings, details of exterior finish, interior woodwork, and cabinet work. Lectures, reading, and drafting-room work. Goldsmith.

60.—BUILDING CONSTRUCTION II. Three hours credit. Second semester, three hours. A study of the principles of masonry construction and their application. This course considers building stones, brickwork, terra cotta, simple cast-iron and steel work, fireproofing, and plastering. Lectures, reading, and drafting-room work. Goldsmith.

61.—HISTORY OF ORNAMENT. Three hours credit. First semester. A study of historical ornament and the arts allied to architecture. Illustrated lectures, research, sketching and drafting-room work. Goldsmith.

62.—BUILDING SANITATION. One hour credit. Second semester. Plumbing, sewerage, water-supply, and plumbing fixtures. Lectures, reading, and drafting-room work. Goldsmith.

63.—FREE-HAND DRAWING V. Two hours credit, for architecture only. First semester, M. W. F., 8:30–10:30 Pencil, pen and brush work, to prepare the student for the free use of sketching in architectural design and composition. Hekking.

64.—FREE-HAND DRAWING VI. Two hours credit, for architects only. Second semester, M. W. F., 8:30–10:30. Continuation of course 63. Hekking.

67.—OFFICE PRACTICE AND SPECIFICATIONS. Two hours credit. First semester, two hours. A course dealing with the essentials of office practice and of specification writing. Goldsmith.

BACTERIOLOGY.*Instructor:* TREECE.

53E.—**SANITARY WATER ANALYSIS** Three hours credit. First semester, 8 to 10. (See chemistry 54.) This work will cover bacteriological technic and reading along general lines, followed by special work on the bacteriology of water and sewage. Designed for students in sanitary engineering, but open to others who have had chemistry 3, if the instructor's consent has been secured in advance. Treece.

For other courses in bacteriology, see The College.

CHEMISTRY.*Professors:* BAILEY, CADY, DAINS, ALLEN.*Associate Professor:* STRATTON.*Assistant Professors:* LONG, ESTES, BREWSTER, ELSEY,

WERTHEIM, ROWLAND.

Instructors: BERGER, MURRAY, RAMSEY, BUFFINGTON,
CHALLIS.

Fees will be charged in the various courses to cover cost of materials, breakage, etc.

2.—**INORGANIC CHEMISTRY.** Four or five hours credit. First semester. Lectures and recitations, M. W. F., 8:30 or 9:30. Laboratory, Tu. Th., 8:30 to 10:30 or 1:30 to 3:30. Chemical and mining-engineering students take four hours laboratory, others two hours.

Cady, Elsey, and assistants.

3.—**INORGANIC CHEMISTRY AND QUALITATIVE ANALYSIS.** Four or five hours credit. Second semester. Lectures and recitations, Tu. Th., 8:30 or 9:30. Laboratory, M. W. F., 8:30 to 10:30 or 1:30 to 3:30. Chemical-engineering students take six hours laboratory, others four hours. Prerequisite, course 2.

Cady, Elsey, and assistants.

5.—**ENGINEERING CHEMISTRY.** Three hours credit. Second semester. Recitations, Tu. Th., at 9:30, laboratory, F., 1:30 to 4:30. Required of mechanical- and civil-engineering students. Cady and assistants.

51.—**QUANTITATIVE ANALYSIS I.** Two, three, or five hours credit. Both semesters, 10:30 to 12:30 or 1:30 to 3:30. A general course covering the fundamental principles of gravimetric and volumetric analysis. Five-hour course required of chemical- and mining-engineering students. Prerequisite, course 3.

Allen and Rowland.

52.—**QUANTITATIVE ANALYSIS II.** Two, three, or five hours credit. Both semesters, 1:30 to 3:30, or by appointment. In the latter part of the course the volumetric analysis of ores and metallurgical products will be taken up. In connection with this work some specialty, such as cement, glass, or packing-house industry, rock analysis, paint analysis, etc., may be pursued. Five-hour course required of chemical-engineering students. Prerequisite, course 51.

Allen, Rowland.

52A.—**SANITARY WATER ANALYSIS.** Three hours credit. Second semester, 10:30 to 12:30. Laboratory work in the sanitary analysis of water and sewage. Lectures and assigned readings on the interpretation of results and upon the methods used. Especially designed to fit students for commercial positions in this line of work. Prerequisite, course 51.

Allen.

52B.—**BOILER-WATER ANALYSIS.** Two hours credit. Second semester, 10:30 to 12:30. Laboratory work in the analysis and softening of boiler waters. Lectures and assigned readings on softening problems and commercial practice in water treatment. Especially designed to fit students for commercial positions in this line of work. Prerequisite, course 51.

Allen.

52C.—GAS ANALYSIS. Two hours credit. First semester, by appointment. A laboratory course of general gasometric methods, analysis of flue gases, artificial and natural gases. Prerequisite, course 51.

Allen.

52D.—FOOD ANALYSIS. Three hours credit. Both semesters, by appointment. Lectures and laboratory. Prerequisites, courses 51 and 61 or 62.

Long.

52E.—OIL ANALYSIS. Two hours credit. First semester, by appointment. The examination of petroleum and products, lubricating oils, asphalts, and road materials. Prerequisite, course 51.

Allen.

52F.—IRON AND STEEL ANALYSIS. Two hours credit. Second semester, by appointment. Analysis of special steels and alloys. Prerequisite, course 51.

Allen.

52G.—THE CHEMISTRY OF MILLING AND BAKING. Two hours credit. Second semester, by appointment. Designed to meet the requirements of chemists desiring to carry on control work in the milling industry. Prerequisites, courses 51 and 61 or 62.

Long.

52H.—INDUSTRIAL ORGANIC ANALYSIS. Two hours credit. Second semester, by appointment. Includes analysis of soap, paper, leather, starches, etc. Prerequisites, courses 51 and 61 or 62.

Estes.

52I.—WET ASSAYING. Two hours credit. Second semester, by appointment. Volumetric methods for the estimation of copper, lead, zinc, manganese, iron, silver, gold, etc. Prerequisite, course 51.

Allen.

52J.—ELECTROLYTIC ESTIMATION OF METALS. Two hours credit. Second semester, by appointment. A laboratory course. Prerequisite, course 51.

Allen.

61.—ELEMENTARY ORGANIC CHEMISTRY. Five hours credit. Both semesters, 1:30-3:30. Designed briefly to cover the aliphatic and aromatic series, to discuss their more important derivatives, and to show their relationship and applications. Required. Metallurgical engineering optional.

Dains, Brewster.

62.—ORGANIC CHEMISTRY I. Five hours credit. First semester. Recitations, M. W. F., at 9:30. Laboratory, Tu. and Th. mornings. Required of chemical-engineering students. In this course the aliphatic series only is discussed, the aromatic series being reserved for organic chemistry 63. Prerequisite, 10 hours chemistry.

Dains, Brewster.

63.—ORGANIC CHEMISTRY II. Five hours credit. Second semester. Recitations, M. W. F., at 9:30. Laboratory, Tu. and Th. mornings. Aromatic series. Required of chemical-engineering students. Prerequisite, course 62.

Dains, Brewster.

70.—PHYSICAL CHEMISTRY. Five hours credit. Second semester, six hours, at 10:30. A course paying special attention to electrochemistry. Lectures, recitations, and laboratory work. Prerequisites, course 3 or course 51, physics 1E and 2E, and mathematics 5E. Required of chemical- and electrical-engineering students; optional for mining engineers.

Cady.

71.—PHYSICAL CHEMISTRY, GENERAL. Five hours credit. First semester, seven hours, at 10:30. Lectures, recitations, and laboratory work. Required of chemical-engineering students.

Cady.

80.—INORGANIC INDUSTRIAL CHEMISTRY. Three hours credit. Second semester, at 11:30. Required of Junior chemical-engineering students. A study of the inorganic industries, including such topics as the manufacture of acids, alkalies and other chemicals, fertilizers, paints and pigments, glass and cement, and the purification of water. Prerequisites, courses 2 and 3.

Allen.

81.—ORGANIC INDUSTRIAL CHEMISTRY. Three hours credit. First semester, at 9:30. Required of Senior chemical-engineering students. A

study of the organic industries, including such topics as the refining of petroleum, the distillation of wood and coal, packing houses, fermentation, soaps, leather, paper, starches, sugars, dyestuffs, etc. Prerequisites, courses 2, 3, and 62. Allen.

CIVIL ENGINEERING.

Professors: WILLIAMS, RICE (H. A.), HASKINS.

Associate Professors: MCNOWN, BROWN (F. L.).

Assistant Professors: JONES (J. O.), STRACHAN.

Assistant: T. M. MOTT.

1.—ELEMENTARY SURVEYING. Three hours credit. First semester, one hour of class work, F., at 10 and 11; two hours of field work, computation and plotting, M. and W., from 1 to 4. Required of civil- and mining-engineering Sophomores. Use and care of engineer's chain, transit, and level. Adjustments of transit and level. Land surveying methods and computations. Prerequisite, mathematics 3. McNown.

2.—HIGHER SURVEYING. Three hours credit. Second semester, F. at 11, with field work W. and F., at 1 to 4. Required of civil- and mining-engineering Sophomores. Topographic and hydrographic surveying. Control of surveys, including introduction to engineering astronomy. Prerequisite, civil engineering 1. McNown.

3.—SUMMER FIELD WORK. Ten hours a day for four weeks at the close of the college year is required of Sophomore civil-engineering students, and the same for two weeks is required of Sophomore mining-engineering students. A topographical survey of an area is made from a camp. Practice in taking topography by transit and stadia, and by plane table, measurements of a basis line, triangulation, leveling, and determination of azimuth latitude and time, constitute the work. Prerequisite, civil engineering 2. McNown.

4.—RAILWAY SURVEYING. Two hours credit. Second semester, Tu. Th., at 9. Required of civil-engineering Sophomores. A study of railway curves and earthwork, with field exercises. Prerequisite, civil engineering 1. Williams.

5.—ROADS AND PAVEMENTS. Two hours credit. Second semester, Sophomore year, Tu. Th., at 11. A study of methods used in the construction and improvement of country roads and city streets. An extended study of paving materials and of the principles governing the selection of a pavement. Same time given to laboratory testing of materials. Prerequisite, civil engineering 1, 2, and 3. McNown.

50.—ELEMENTARY SURVEYING. Three hours credit. Both semesters. Two hours of class work, Tu. Th., at 9 in the first and at 8 in the second semester. One hour of field from 1 to 4, on M. in the first and on Tu. in the second semester. Required of Senior electrical, and Sophomore architectural and mechanical students. A brief course based on course 1 and 2. McNown, Strachan.

52.—CITY PLANNING. Two hours credit. Second semester, W. F., at 8. Required of Junior sanitary students, and optional to Senior civil-engineering students. A study of city planning from the modern viewpoint, under such topics as city planning abroad, the American city, design of streets and street systems, parks and playgrounds, civic centers, water features, methods of acquiring land, and legislation. Lectures and assigned readings. McNown.

53.—GEODESY. Three hours credit. First semester. Two hours in classroom and one in field, and computation. By appointment. Optional to Seniors. A brief study of the construction, use, and adjustment of the higher instruments of precision, and their use in the determination of the size and figure of the earth, including a study of the application of the method of least squares to the adjustment of observations. Prerequisite, civil engineering 3. McNown.

55.—RAILWAY SURVEYING Four hours credit. First semester, Junior year, Tu. Th., at 9; M. W., at 1. A study of methods of laying out and constructing railways, with field practice consisting of a location survey of a line of sufficient length to familiarize the student with standard methods of doing such work; calculation of waterways; bridge surveys; yards, turnouts, and easement curves. Prerequisites, civil engineering 1, 2, 3, and 4. Williams.

57.—ADVANCED RAILWAY ENGINEERING Two hours credit. Second semester, Junior year, Tu. Th., at 11. The principles involved in the economic location and construction of railways. Analysis of traffic and operating expenses. The influence of proposed changes in location upon the amount of total revenue, the fixed charges, the operating expense, and the dividend-paying capacity of the road. Prerequisite, civil engineering 55. Williams.

58.—RAILWAY TERMINALS AND SIGNALING Two hours credit. First semester, Senior year, Tu. Th., at 8. A general study of terminal problems, the design of yard layouts and of terminal structures. Some time given to signal engineering. Prerequisite, civil engineering 55. Williams.

59.—RAILWAY CONSTRUCTION AND MAINTENANCE. Three hours credit. Second semester, Senior year, M. W. F., at 10. An advanced course in railway engineering, covering tunneling, economic handling of materials, railway structures, trestles, timber preservation, as well as the theory and practice of railway maintenance. Prerequisite, civil engineering 55. Williams.

61.—STRESSES IN FRAMED STRUCTURES. Five hours credit. First semester, five hours, at 11. Analytical and graphical calculation of stresses in framed structures under various forms of loading. This course must be preceded by courses 51 and 53 in mechanics. H. A. Rice.

62.—BRIDGE DESIGN. Four hours credit. Second semester, eight hours, 1 to 4. A study in bridge details and the dimensions of parts. Students work out designs for a plate girder and a simple truss. Must be preceded by course 61. H. A. Rice.

62A.—STRUCTURAL DESIGN Three hours credit. Second semester. A study of structural details and proportioning parts. The student makes a detailed design and the plans for typical steel structures. Prerequisite, civil engineering 61. H. A. Rice.

64.—MASONRY. Three hours credit. Second semester, Senior year, M. W. F., at 10. Stone and brick masonry; the science of proportioning concrete; foundations, including pile driving, cofferdams, pneumatic caissons, etc.; dams, retaining walls, piers and abutments, masonry bridges. Prerequisite, mechanics 50 and 51. Williams.

65.—REINFORCED CONCRETE. Three hours credit. Senior, first semester, M. W. F., at 10. A course in the modern theory and practice in the design of beams, floor slabs, columns, conduits, retaining walls, arches, and other forms of reinforced concrete construction. Mathematical theory, study of plans, and design of typical structures. Prerequisite, mechanics 51. H. A. Rice.

66.—REINFORCED CONCRETE DESIGN. One hour credit. Second semester Senior. This course supplements course 65. Designs of beams, slabs, retaining walls, etc., together with a complete analysis of a reinforced-concrete arch, are made. Prerequisite, civil engineering 65. H. A. Rice.

67.—HIGHER STRUCTURES Three hours credit. Second semester, Senior, M. W. F., at 9. An advanced course in bridges, including swing bridges, cantilever bridges, suspension bridges, and arches. Some work will be given in calculations of deflections and statistically indeterminate stresses. H. A. Rice.

70.—WATER SUPPLIES. Five hours credit. First semester, three hours, M. W. F., at 11. The collection and distribution of water supplies. Requisites of supply as to quality and quantity. Design of distribution, collection and storage works. Haskins.

71.—SEWERAGE. Two hours credit. Tu. Th., at 11. An elementary course in the collection, removal and disposal of city sewage. Principles of the design and construction of sewers and storm drains. Prerequisite, mechanics 55. Haskins.

72.—ADVANCED SANITARY ENGINEERING. Four hours credit. Second semester, four hours, M. Tu. W. Th., at 9. A more detailed study of the subjects treated in courses 70 and 71. The purification of public water supplies and the treatment of sewage. Haskins.

73.—SANITARY ENGINEERING DESIGN. Five hours credit. Second semester, five hours, at 1. The student works out, by practical problems, the principles learned in courses 70, 71 and 72. Haskins.

74.—SANITARY SCIENCE AND PUBLIC HEALTH PROBLEMS. Two hours credit. First semester, two hours, Tu. Th., at 9. A broad general view of the large body of sanitary science upon which the modern practice of sanitation is based. The effects of good practice in such matters as public water supply, sewerage and drainage, state and federal control over the pollution of streams, vital statistics. Haskins.

75.—WASTE AND GARBAGE DISPOSAL. One hour credit. Second semester, one hour, M., at 11. A lecture course in the practice of street cleaning, refuse and garbage collection and disposal. Haskins.

76.—IRRIGATION AND DRAINAGE ENGINEERING. Two hours credit. Second semester. Optional to Seniors. Impounding, diversion, conveyance, measurement and duty of water; irrigation structures; irrigation law; drainage factor; design of drainage system; assessment of benefits; drainage law. McNown.

80.—SEMINAR. One-half hour credit. First semester, Senior year. Preparation and presentation of technical papers. Williams.

90.—THESIS. Three hours credit, either semester, Senior year. An intensive study of some subject, the design of an engineering structure of some magnitude, or an experimental investigation with a formal dissertation thereon. Williams, H. A. Rice.

ECONOMICS.

Professor: BOYNTON.

Associate Professor: DUFFUS.

1E.—ELEMENTS OF ECONOMICS. Three hours credit. Both semesters. M. W. F., at 9:30. This course endeavors to explain the general laws of man's relation to wealth. Special attention is given to the parts of the subject of special interest to engineering students, such as corporations, the economic activities of municipalities, organized labor, and the general labor problem.

3.—ECONOMIC AND FINANCIAL HISTORY OF THE UNITED STATES. Three hours credit. Second semester, at 9:30. Attention is given to colonial agriculture, industry, and trade as an introduction to the course. After 1789, the main lines of study are the banking, transportation, and tariff history of the United States, with especial attention to the development of the natural resources, the rise of manufactures, and the expansion of corporate methods. Prerequisite, course 1. Boynton.

ACCOUNTING I AND II. See economics 64 and 65.

ELECTRICAL ENGINEERING.

Professor: SHAAD.

Associate Professor: JOHNSON (F. E.).

Instructor: NEUMANN.

Assistant Instructor: BLAZIER.

Courses 50 to 52, and 54 to 58, inclusive, and 61 and 62 are required of all electrical-engineering students. Courses 50, 53, 54, and 55 are required of mechanical-engineering students. Courses 59 and 63 are optional for electrical-engineering students.

50.—DYNAMO MACHINERY. Three hours credit. Sophomore, second semester, three hours, at — for electrical-engineering students, and at 8 for Senior mechanical-engineering students. Theory of direct-current generators and motors. Prerequisites, physics 1E and 2E.

F. E. Johnson.

51.—THEORY OF ALTERNATING CURRENTS. Four hours credit. Juniors, first semester, four hours, at 8, for electrical-engineering students. A mathematical treatment of alternating-current phenomena and the theory of alternating-current machinery, fundamental types. Prerequisite, course 50.

Shaad.

52.—ADVANCED DYNAMO MACHINERY. Four hours credit. Junior, second semester, four hours, at —. Advanced theory of alternating-current machinery.

Shaad.

53.—THEORY OF ALTERNATING CURRENTS. Three hours credit. Second semester, three hours, M. W. F., at 11 for Senior mechanical-engineering students. A study of the theory of alternating currents and alternating-current machinery, together with a discussion of motor application. Prerequisite, course 50.

F. E. Johnson.

54.—ELECTRICAL LABORATORY. One and one-half hours credit. Sophomore, second semester, three hours, two days per week on alternate weeks, 1 to 4. An experimental course for the purpose of illustrating the principles of direct-current dynamo machinery and acquainting the student with the types and performance of direct-current apparatus. Must be preceded or accompanied by course 50.

Neumann, Blazier.

55.—ELECTRICAL LABORATORY. One and one-half hours credit. Junior, second semester, three hours, two days per week on alternate weeks, 1 to 4. A continuation of course 54. Must be preceded or accompanied by course 51. More advanced work with direct-current machinery is given and experiments with alternating-current apparatus are introduced. Some time is devoted to the calibration of electrical instruments.

Neumann, Blazier.

56.—ELECTRICAL LABORATORY. One and one-half hours credit. Senior, first semester, three hours, two days per week, 1 to 4. Advanced experiments with electrical machinery and the testing of machines, chiefly of alternating-current types. Must be accompanied by course 52.

F. E. Johnson, Neumann.

57.—ILLUMINATING ENGINEERING. Three hours credit. Senior, first semester, three hours, Tu. Th., at 11. A course in illumination and photometry, in which the available light sources are studied and the methods of application to artificial illumination of streets and buildings are discussed. Laboratory and field work in the measurement of light sources and illumination.

F. E. Johnson.

58.—ELECTRIC POWER TRANSMISSION AND ELECTRIC RAILWAYS. Four hours credit. Senior, first semester, four hours, at —. A series of lectures and recitations devoted to the study of the principles involved and the methods used in the design of transmission and distributing systems and the theory and practice of the design, construction, and operation of electric-railway systems. Prerequisite, course 52.

Shaad.

59.—ELEMENTARY TELEPHONY. Five hours credit. Second semester, five hours by appointment. Lectures, recitations, and laboratory work. The principles that underlie all telephone apparatus, and practical experiments with the fundamental telephone transmitters, receivers, and central-station arrangements. Optional for Juniors or Seniors.

Shaad.

60.—ELEMENTS OF ELECTRICAL ENGINEERING. Three hours credit. First semester, at 9. A course covering the general field of electrical engineering, and prepared especially for civil-engineering students. Junior or Senior year.

Shaad.

61.—PROFESSIONAL THESIS. Senior, first semester, three hours, and second semester, nine hours, by appointment. Shaad, or other instructors, according to the line of work chosen.

62.—CENTRAL STATIONS. Three hours credit. Three hours in the classroom, M. W. F., at 10, and one period in the drafting room each week. A study of the design, construction, operation, and management of central electrical stations and substations.

Shaad.

63.—ADVANCED ELECTRICAL LABORATORY. Five hours credit. Seniors, second semester, by appointment. A continuation of course 56. More advanced and extended experiments with electrical machinery and circuits, introducing the experimental study of transient electrical phenomena.

F. E. Johnson.

64.—ELECTRICAL ENGINEERING FOR ARCHITECTS. Two hours credit. Junior or Senior architects, Tu. Th., at 11:30. A brief course dealing with illumination, wiring installations and electrical apparatus for building equipment.

Shaad.

ENGINEERING DRAWING.

Professor: HOOD.

Assistant Professors: GRIDER, F. E. JONES, STRACHAN.

Assistant Instructors: JAKOWSKY, WHITE, WAHLSTEDT, BUNN, SHORT.

1.—LETTERING AND FREE-HAND DRAWING. Two hours credit. Freshman, both semesters; six hours or twelve hours; first semester, M. W. F., 8:30 to 10:30; or Tu. Th., 8:30 to 11:30, or M. Tu. W. Th., 1:30 to 4:30., or F., 1:30 to 5:30, and Sat., 8:30 to 11:30. Second semester, M. W. F., 8:30 to 10:30, or M. W., 1:30 to 4:30. Engineering lettering in pencil and in ink. Free-hand working sketches and perspective sketches of simple machine parts. Working drawings of simple machine parts. Penciling, tracing, blue-printing. Detailing machine parts from assembly drawings.

Hood, Jones, Grider, Strachan, Jakowsky,
White, Wahlstedt, Short.

2.—MACHINE DRAWING. Two hours credit. Freshman, eighteen weeks or nine weeks of both semesters; six hours or twelve hours. Same hours as in course 1. Sketches of machine parts and preparation of working drawings; detailing of machines from sketches, notes, assembly drawings and assembled machines; tracing and blue-printing; notes and lectures on drafting-room methods. Each student prepares complete drawings for some simple machine.

Hood, Jones, White, Wahlstedt,
Jakowsky.

3.—DESCRIPTIVE GEOMETRY. Three hours credit. Freshman, second semester, three hours, M. W. F., at 8:30, 9:30, 10:30, 11:30, 1:30, 2:30, and 3:30; also first semester, at 11:30. Principles of projection. Execution of a large number of original exercises.

Hood, Jakowsky, Jones, White, Bunn.

4.—MECHANICAL DRAWING. Two hours credit. For students of Architectural engineering and architecture only. Freshman, eighteen weeks of

first semester. Engineering lettering in pencil and ink; use of instruments; detailing of machine parts from sketches, assembly drawings, and assembled machines; tracing and blue-printing. F. E. Jones.

ENGLISH LANGUAGE AND LITERATURE.

Associate Professor: RAYMOND.
Instructors: WATTLES, WILSON.

The instruction in this department, while in essentials parallel to that in the College, is shaped with special reference to the other work of engineering students. Three of the courses here numbered are required before graduation; for students who wish to spend more time in work of this kind appropriate classes in the College are open.

1E.—RHETORIC I. Three hours credit. First semester, at 8:30, 9:30, 10:30, 11:30, 1:30, 2:30, and 3:30, second semester, at 11:30. Written exercises, with study of language usage. Required of all Freshmen.
Raymond, Wattles, Wilson.

2E.—RHETORIC II. Two hours credit. Second semester, at 8:30, 9:30, 10:30, 11:30, 1:30 2:30, and 3:30. Continuation of course 1E.
Raymond, Wattles, Wilson.

59.—ADVANCED COMPOSITION I. Three hours credit. Both semesters, at 8:30 and 9:30. Practice in the gathering and analyzing of material, and in presenting of information and opinion in written papers. Required of all engineering students, one semester.
Raymond.

59A.—ADVANCED COMPOSITION II. Three hours credit. By appointment. Continuation of course 59, with special regard to writing for publication. Optional for Seniors.
Raymond.

GEOLOGY.

Professors: HAWORTH, MOORE.
Associate Professor: HAYNES.
Assistant Professor: FLEENER.

2.—ELEMENTARY GEOLOGY. Three hours credit. Each semester, at 8 or 10, with one laboratory period per week, from 1 to 3 on Wednesday or Thursday. A study of the elements of the science, including a general outline of geologic principles and agencies. An acquaintance with elementary chemistry is very desirable in this course. Moore, Haynes.

3.—INTRODUCTORY HISTORICAL GEOLOGY. Two hours credit. Each semester, at 8 or 10. A study of the more important events in the past history of the earth, as a basis for the correct understanding of the present geography, rock structure, and natural resources of the world. This course must be accompanied or preceded by 2. Required of mining engineers.
Moore, Haynes.

4.—FIELD GEOLOGY. Two hours credit. Second semester, Saturday mornings. Field work and reports on the physiography and geology of Lawrence and vicinity. An introductory course for those who wish to learn the methods of field work. Must be preceded or accompanied by geology 2 and 3.
Moore, Haynes, Fleener.

31.—MINERALOGY I. Five hours credit. Second semester, M. Th. F., 1 to 4. Six hours laboratory work. A brief course in crystallography, and descriptive and determinative mineralogy, including blow-pipe analysis. The characteristics of about 150 important minerals will be studied. Prerequisite, elementary chemistry.
Haynes.

50.—GEOLOGIC AND TOPOGRAPHIC MAPS. Two hours credit. First semester, at 11. A study chiefly in the laboratory designed to give the student a thorough understanding of geologic and topographic maps and the ability to interpret them correctly. Prerequisites, Geology 2 and 3.
Haynes, Fleener.

51.—GEOLOGIC PROCESSES. Three hours credit. First semester, at 11. An advanced course comprising a critical investigation of geologic agencies and the results of their work. The development of land forms and the principles of sedimentation, and the physiographic history of specific areas. Library and laboratory study, with special opportunity for training in the methods of geologic work. Prerequisites, geology 2 and 3 and elementary physics and chemistry. Fleener.

52.—FIELD GEOLOGY. Six hours credit. Summer session. A five-weeks course devoted to a study of the geology and physiography of parts of Kansas and Colorado, with detailed investigation of special areas. Prerequisites, geology 2 and 3. Registration only after consultation with the instructors. Moore, Haynes.

53.—FIELD GEOLOGY REPORT. An additional credit of three hours will be given for a satisfactory thesis based upon the work of course 52.

61.—HISTORICAL GEOLOGY. Five hours credit. Second semester, at 9. A study of the geologic history of the earth, the evolution and development of the continents, stratigraphy, and the history of plant and animal life from their earliest known beginnings to the present. The geologic significance and use of fossils in the identification and correlation of stratified rocks. Prerequisites, geology 2 and 3. Elementary zoölogy very desirable. Moore.

62.—INVERTEBRATE PALEONTOLOGY I. Five hours credit. First semester, by appointment. A study of the introduction and succession of fossil faunas, their composition, and geographic distribution. Practical exercises in the identification of faunas of different geologic ages. A classroom and laboratory course. Prerequisites, geology 2 and 3. Moore.

71.—STRUCTURAL AND DYNAMIC GEOLOGY. Five hours credit. First semester, at 2. A careful study of geological dynamics and results of dynamic actions, particularly on stratified rocks, and latest and best methods for field operations while studying same. Prerequisites, geology 2 and 3. Haworth.

72.—ECONOMIC GEOLOGY I. Metals. Five hours credit. First semester, at 10. A general study of the metallic products of the mine, considered from a scientific and a practical standpoint, including the nature, origin, amount, and geographic and geologic distribution of the same. Prerequisites, elementary chemistry, and geology 2 and 3. Lectures and library work. Haworth, Haynes.

73.—ECONOMIC GEOLOGY II. Oil, Gas, and Coal. Five hours credit. Second semester, at 10. A careful study of oil and gas, regarding nature, origin, geography and geology, and economic importance. Much attention is paid to field conditions surrounding different oil fields and best methods for understanding same. Prerequisites, elementary chemistry, and geology 2 and 3. Haworth, Haynes.

81.—PETROLOGY I. Two hours credit. First semester, by appointment. Lithology, structure, texture, mineral and chemical composition, and the manner of formation and occurrence of igneous, sedimentary, and metamorphic rocks; geological problems confronting mining engineers, changes in grade, or character, of ore deposits. Effect of faulting, folding and intrusions of igneous rocks. Prerequisites, geology 2 and 31 or 30. Haynes.

82.—PETROGRAPHY. Three hours credit. First semester, by appointment. This course consists of training in the methods of petrographic study and includes the macroscopic and microscopic examination of the principal rock types and a consideration of the theories of modern petrology. Prerequisites, geology 2 and 31 or 30. Haynes.

GERMAN.

Professors: ENGEL, THURNAU.

Associate Professors: CORBIN, KRUSE.

Assistant Professor: STURTEVANT.

1.—ELEMENTARY GERMAN.—ESSENTIALS OF GRAMMAR. Five hours credit. First semester, at 8:30, 9:30, 10:30; second semester, 8:30, 10:30. Vos's Essentials of German. Engel, Thurnau, Corbin, Sturtevant.

2.—PROSE READINGS. Five hours credit. First semester, at 10:30, 11:30; second semester, at 8:30, 10:30. Vos's Essentials of German completed. Reading of selected prose texts. Thurnau, Corbin, Sturtevant.

3B.—SCIENTIFIC GERMAN. Five hours credit. First semester, at 8:30; second semester, 9:30. A thorough review of grammar, Das Edle Blut or equivalent text, forty to fifty pages, as introductory reading matter, followed by a scientific German reader. The aim of the course is to introduce the student to the style and vocabulary of scientific German and develop the ability to read simple scientific writings. Engel, Kruse.

4B.—SCIENTIFIC GERMAN. Three hours credit. Second semester, at 8:30. Reading of scientific German texts in class and assigned readings on selected topics outside of class. The aim of this course is to develop the rapid reading of more advanced scientific German in special fields. Engel, Kruse.

HISPANIC LANGUAGES.

Instructors: BYRNS, HUFFMAN, MRS. ALBALADEJO.

1.—ELEMENTARY SPANISH. Five hours credit. First semester, at 10:30 and 11:30. Instruction is by a modified form of the direct method. All Instructors.

2.—ELEMENTARY SPANISH II. Five hours credit. Second semester, at 10:30 and 11:30. A continuation of course 1. Practice in writing and speaking Spanish. All Instructors.

INDUSTRIAL ENGINEERING.

Professor: WALKER.

Associate Professor: SLUSS.

Assistant Professor: _____.

1.—ENGINEERING LECTURES. First semester, Th., at 4:30. A course of 6 lectures given to Freshmen during the first semester. The purpose is twofold: first, to give the student a more adequate idea of engineering as a profession; second, to assist those who have not decided upon the courses of study to be pursued to gain a more definite conception of the field covered in each. Walker.

50.—MANUFACTURING COSTS. Two hours credit. First semester, at 8:30. Study of cost elements: mathematics of cost calculation, especial reference to depreciation and overhead. Walker.

51.—INDUSTRIAL ENGINEERING. Three hours credit. First semester, Senior, at 8:30. Manufacturing processes employed in certain typical industries; marketing methods; power applications; engineering practice in the industries with especial reference to selection of equipment; layout of manufacturing plant. Walker, Sluss.

52.—INDUSTRIAL ADMINISTRATION. Three hours credit. Second semester, at 8:30. Development of modern industrial systems; forms of ownership—partnerships and corporations; contract principles, and practice in contract writing for engineering work; organization of transportation and manufacturing companies; cost factors; valuation of properties. Mining students take a portion of the course for two hours credit. Walker.

MACHINE CONSTRUCTION.*Superintendent: ROCKLUND.**Instructors: ROCKLUND, FORNEY, RUTHERFORD, BAILEY.**Assistant Instructors and Mechanics: LEFFERT,
MESSENHEIMER.*

The work is designed to suit the needs of engineering students. It consists of practice work following demonstrations and recitations in the classroom. Textbook preparation and note writing are required in the class work. One hour of each regularly assigned weekly period is devoted to classroom work during a portion of the semester. In the advanced courses attention is given to modern methods of welding, heat treatment of high-carbon steels, machine-shop construction, the grouping of machines, and methods followed in standardizing production.

1.—**FOUNDRY PRACTICE.** One hour credit. Both semesters, three hours per week. Molding, and management of the cupola furnace and brass furnace. Practice in melting and pouring iron and nonferrous alloys. Each squad of students is required to have entire charge of the melting and casting of a heat of iron at least once during the course. Required of mechanical, electrical and chemical engineering students. Bailey.

2.—**PATTERN MAKING.** One hour credit. Both semesters, three hours per week. The principles of pattern making are studied in a practical way by having each student make patterns that are actually used in the foundry. Required of students in mechanical, electrical, and chemical engineering. Rocklund.

3.—**FORGING.** One hour credit. Both semesters, three hours per week. Complete course, including stock calculations, bending, drawing, welding, tempering, and hardening. Required of all excepting architectural and civil engineering students. Forney.

5.—**BENCH WORK.** One hour credit. First semester, three hours per week. A machine-shop course in the use and care of tools, practice in filing, chipping, drilling, and riveting. Required of students in mechanical, electrical, and chemical engineering. Rutherford.

6.—**MACHINE TOOL WORK I.** One hour credit. Second semester, three hours per week. Principally lathe work. Includes cutting off stock, centering, straight and taper turning and thread cutting; turning steel, wrought iron, cast iron and brass. Required of students in mechanical, electrical, chemical, and mining engineering. Rutherford.

7.—**MACHINE TOOL WORK II.** One hour credit. Second semester, three hours per week. Use of planer, shaper, milling machine, boring mill, turret lathe; laying out and making machine parts from the drawing; gear cutting. Required of students in mechanical and industrial engineering. Rutherford.

8.—**ADVANCED MACHINE-SHOP PRACTICE.** One hour credit. First semester, three hours per week. Tool making. Hardening and tempering; grinding, autogenous welding, jig making; preparing and using high-speed and alloy steels; assembling machinery. Required of students in mechanical engineering. Rutherford.

MATHEMATICS.*Professor: ASHTON.**Associate Professor: LEFSCHETZ.**Assistant Professors: JORDAN, WHEELER.**Instructors: NELSON, GOUWENS.*

1.—**SOLID GEOMETRY.** Two hours credit. Second semester, two hours, 10, 10:30. The usual theorems and constructions of standard textbooks and applications to the mensuration of surfaces and solids. Wheeler.

2a.—**ALGEBRA.** Three hours credit. First semester, three hours, 8:30, 9:30, 10:30, 2:30, 3:30; second semester, three hours, 8:30. Review of

elementary algebra; graphic representation, logarithms, theory of equations. Required of all Freshmen in the School of Engineering.

Jordan, Wheeler, Nelson.

2c.—COLLEGE ALGEBRA. Five hours credit. First semester at 8:30, 11:30. This section is intended for those who enter with only one unit of algebra, and will include a more thorough review of elementary algebra, together with the subjects named in 2a.

Jordan, Gouwens.

3.—PLANE TRIGONOMETRY. Two hours credit. First semester, two hours, 8:30, 9:30, 10:30, 11:30, 2:30, 3:30; second semester, two hours, 8:30. The six trigonometric functions, principal formulas of plane trigonometry, solution of triangles and practical problems. Required of all Freshmen in the School of Engineering.

Jordan, Wheeler, Lefschetz, Gouwens.

4E.—ANALYTIC GEOMETRY. Five hours credit. First semester, five hours, at 9:30, 10:30; second semester, five hours, 8:30, 9:30, 10:30, 11:30, 1:30, 2:30. The straight line and circle, conic sections, higher plane curves, solid analytic geometry. Required of all Freshmen in the School of Engineering.

Jordan, Wheeler, Lefschetz, Gouwens.

5E.—CALCULUS I. Five hours credit. First semester, five hours, 8:30, 9:30, 10:30; second semester, five hours, 9:30, 10:30. Differential calculus, applications to geometry and mechanics, maxima and minima, integral calculus, simple applications to length, areas, and volumes. Required of all Sophomores in the School of Engineering.

Ashton, Jordan, Wheeler, Lefschetz.

6E.—CALCULUS II. Three hours credit. First semester, three hours, at 11:30; second semester, three hours, 8:30, 9:30, 10:30. Applications of the calculus to problems of solid geometry, double and triple integration, applications to areas, volumes, centers of gravity, and moments of inertia; simple differential equations. Required of all Sophomores in the civil, electrical, and mechanical courses.

Ashton, Jordan, Lefschetz.

57E.—SELECTED TOPICS IN ENGINEERING MATHEMATICS. Second semester, three hours, at 11:30. Complex numbers and vectors, exponential and trigonometric series, hyperbolic functions, differential equations of electrical and mechanical engineering, empirical curves, methods of approximation and numerical calculation. The course may be modified to suit the needs of the class. Optional for Juniors, Seniors, and graduates.

Jordan.

For other courses in mathematics, see The College.

MECHANICAL ENGINEERING.

Professor: SIBLEY.

Associate Professor: SLUSS.

Assistant Professor: DENT.

Assistant: WILDER.

1.—MACHINE DESIGN I. One hour credit. Sophomore, first semester, M., three hours, at 1:30. Materials used in machine construction, with a study of assembly and detail working drawings.

Sibley.

2.—MECHANISM. Two hours credit. Sophomore, first semester, M. and W., 1:30. A study of the motion of machine parts and of methods of transmission of motion by gears, belts, cams, and links. Recitations and drawing for mechanical-engineering students. Text, Sibley's Pure Mechanism.

Dent.

4.—STEAM MACHINERY. Two hours credit. (a) Fuels, combustion, and steam generation. (b) A study of boiler and engine types. Principal text, Heat Engines, by Allen and Bursley. Required of electrical-engineering students.

Sluss.

5.—ENGINES AND BOILERS. Three hours credit. Sophomore, second semester, M. W. F., at 9:30; and five exercises in the steam laboratory,

Sat., at 8 to 12. A brief study of the general problem of steam power generation from the standpoint of the installing engineer. Text, *Heat Engines*, by Allen and Bursley. Required of civil-engineering students. Physics 1E is a prerequisite. Dent.

6.—STEAM ENGINEERING. Four hours credit. Sophomore, first semester, M. W. F., at 8, and W. Th., 1 to 4. Elements of steam machinery, with special reference to combustion of fuels, boiler types, engine mechanism and power-plant auxiliaries. Laboratory practice in proximate analysis of coal, and flue gas analysis. For mechanical-engineering students. Sluss.

8.—MECHANICAL ENGINEERING. Machine elements. Two hours credit. Sophomore, first semester. A course for chemical-engineering students covering briefly the simpler elements of mechanism and empirical design during first nine weeks. The last nine weeks are given to shop production problems, including the organization of a small shop, selection of tools, layout of tool room and tool handling system, stock room records, elements of cost keeping. Students must have completed engineering drawing 1 and 2, machine construction 1 and 2, and be attending simultaneously the class in machine construction 5. Sluss.

50.—MACHINE DESIGN II. Five hours credit. Junior, second semester, M. W. F., at 10:30, and M. Th., 1:30 to 4:30. Solution of problems in the design of general machine parts, including cylinders, plates, springs, riveted joints, bearings, journal shafts, gears, pulleys, and belts. Lectures, recitations, and drawing. Dent.

51.—THERMODYNAMICS. Three hours credit. Junior, first semester, M. W. F., at 9:30. The relation between heat and mechanical energy; theory of heat engines. Must be preceded by physics 1E and calculus. Required of mechanical-engineering students. Dent.

52.—HEAT-ENGINE THEORY. Three hours credit. Junior, first semester, M. W. F., at 8:30. A course for electrical-engineering students, treating the science of thermodynamics more briefly than in the preceding course and including engine applications. Dent.

53.—MACHINE DESIGN III. Three hours credit. Junior, second semester, Tu. Th., at 11:30, and two half days on alternate weeks. Problems in the design of machinery, including kinematics and kinetics. Graphical analysis of forces in rods, frames and shafts, centrifugal, inertia and shaking forces in moving parts. Required of electrical-engineering students. Sibley.

54.—HEATING, VENTILATING, AND REFRIGERATING. Two hours credit. Senior, second semester, two hours, at 10:30. Laws of heat transfer, amount of air required for ventilation, methods and apparatus employed in modern building, central heating plants. Sibley.

56.—MOTIVE POWER MACHINERY. Three hours credit. First semester. Includes a brief review of the thermodynamics of engines and turbines. Determination of sizes for given horsepower; methods of compounding, regulation and balancing; study of details, including valves and valve gears, cylinders, rotating and reciprocating parts of engines and nozzles, blades, and rotors of turbines. Required of mechanical-engineering students. Sibley.

57.—STEAM-ENGINE AND TURBINE DESIGN. Three hours credit. Second semester. Application of principles covered in course I to the design of special types of turbines. Optional for mechanical-engineering students. Sibley.

58.—GAS-ENGINE AND COMPRESSOR DESIGN. Two hours credit. Senior, first semester, M. Tu., 1, W. Th., of alternate weeks, at 1:30. General theory and practice of gas-engine and compressor design and construction. Sibley.

60.—AUTOMOTIVE ENGINEERING. Lectures, recitations, and design. Measurements and observations made on automotive machinery. Laboratory work includes study of types, sizes and methods of operating automotive equipment, and the testing of automotive engines. Junior, second semester. Three hours credit. Prerequisites, chemistry 5 and physics 2E. Sluss.

61.—STRUCTURAL DESIGN. Two hours credit. Senior, optional. Stresses in steel and reinforced concrete buildings, and design of members of the structure; design of chimneys, bins, and retaining walls. Sibley.

64.—MECHANICAL LABORATORY. One hour credit. Second semester, Junior, W. or Th., 1:30 to 4:30. Calibration of thermometers and indicator springs, physical properties of lubricating oils, valve setting, commercial testing of boilers, engines, and pumps. For mechanical-engineering students. Sluss, Wilder.

65.—POWER LABORATORY. One and one-half hours credit. Senior, first semester, M. or Tu., 1:30 to 4:30. Calibration of apparatus, fuel testing, laboratory tests of steam and gas prime movers, complete power-plant test. Outside preparation of preliminary and final reports. Prerequisites, mechanical engineering 4, 52, and 53. For electrical-engineering students. Sluss, Wilder.

66.—HEAT-ENGINE LABORATORY. One and one-half hours credit. Senior, second semester, M. or Tu., 1:30 to 4:30. Study of experimental engineering methods and their application to complete tests of boilers, steam and gas prime movers, compressors, and refrigerating units. Drill in report writing, and outside reading of literature bearing on power development. Prerequisites, mechanical engineering 6, 51, and 56. For mechanical-engineering students. Sluss, Wilder.

67.—THESIS. Three hours credit. Senior, both semesters, F., 1:30 to 4:30. Sibley, Sluss.

68.—SUMMER VACATION WORK. Two months to be spent in regular work in some shop or manufacturing plant of good standing. A report on this work, with a certified statement from the shop foreman or the superintendent, must be presented before credit can be given.

MECHANICS.

Professors: RICE (H. A.), WILLIAMS.

Associate Professor: BROWN.

Assistant Professor: JONES (J. O.).

50.—THEORETICAL MECHANICS. Five hours credit. Junior, first semester, five hours, at 8:30, 9:30, 10:30, 11:30; second semester, 10:30. A study of the laws of statics and dynamics. Action of forces upon bodies, and the resulting motions. Required of all engineering students. Prerequisite, calculus I. Brown.

50*a*.—THEORETICAL MECHANICS. Two hours credit, second semester of the Sophomore year. For Civil Engineers. Brown.

50*b*.—THEORETICAL MECHANICS. Three hours credit, first semester, Junior year. For civil engineers. Courses 50*a* and 50*b* cover the same ground as mechanics 50. Brown.

51.—STRENGTH OF MATERIALS. Four hours credit. Junior, first semester, four hours, 8:30; second semester, 8:30, 9:30, 10:30. The theory of resistance to stress and application to engineering construction. Required of all engineering students. Prerequisite, mechanics 50. Brown, J. O. Jones.

52.—TESTING OF MATERIALS. One hour credit. Junior, second semester, three hours, M. T. W. Th. or F., afternoon, or Sat. morning. A laboratory course to accompany course 51. The testing of iron, steel, wood, and other materials of construction for resistance to tension, compres-

sion, torsion, bending, and shearing. Experimental determination of the limits of safe loading. The testing of paving brick. Brown, J. O. Jones.

53.—GRAPHIC STATICS. Two hours credit. Junior, second semester, nine hours, at 1:30. The properties of equilibrium polygons and other methods of representing the actions of forces, with application to the determination of stresses in beams, trusses, and arches. Lectures and drawing. Prerequisite, mechanics 50. Brown.

54.—ENGINEERING MATERIALS. Two or five hours credit. First semester, ——— hours, by appointment. A study of the methods of manufacture of structural materials and the different means and machines used in their testing. Opportunity will be given for specialization along some particular line, if desired, and considerable experimental work may be done in the laboratory. Recitations, lectures, library, and laboratory work. Optional for Seniors. Prerequisite, mechanics 51. H. A. Rice.

55.—HYDRAULICS. Three hours credit. Each semester. A study of the laws governing the pressure and flow of liquids. Methods of measurement of flowing water. Stream gaging, conveyance and distribution of water by pipes and open channels. Required of Junior civil-engineering and Senior mechanical-engineering students. Prerequisite, mechanics 50. J. O. Jones.

56.—HYDRAULIC LABORATORY. One hour credit. Each semester. A course to accompany course 55. Experimental work with the flow of water over weirs and through offices and pipes. Calibration of instruments. Testing of hydraulic machinery. Required of Junior civil-engineering and Senior mechanical-engineering students. J. O. Jones.

57.—HYDRAULIC CEMENT. One hour credit. Second semester, two hours, M. or Th., at 3:30. A laboratory course in testing hydraulic cements and making comparison of their qualities. Reading, experimental work, and reports of tests made. Prerequisite, civil engineering 64. Williams.

58.—HYDRAULIC POWER. Three hours credit. First semester, by appointment. Water-power development. Rainfall and run-off, stream flow, preliminary plant layout, selection of standard water turbines. Senior optional. J. O. Jones.

METALLURGY.

Professor: ———.

Assistant Professors: ESTES, ROWLAND.

53.—ASSAYING AND METALLURGICAL ANALYSIS. Three or five hours credit. Second semester, five or ten hours, Tu. Th., 1:30 to 3:30. The first half of the semester is devoted to the fire assay of gold, silver, and other metals; the second half to the volumetric assay of ores and furnace products. Junior mining-engineering students are required to take the entire course, carrying five credits; the Senior chemical-engineering students are required to take fire assaying the first half of the semester, and will receive three credits. ———, Estes.

90.—METALLURGY I. Three hours credit. First semester, three hours, at 11:30. General metallurgy and the metallurgy of iron and steel. Lectures and recitations. Must be preceded by chemistry 3. Required of Junior mechanical-engineering students and Senior chemical-engineering students. Rowland.

91.—METALLURGY II. Three hours credit. Second semester, three hours, M. W. F., at 9. Metallurgy of lead, zinc, and copper, followed by that of silver, gold, mercury, and tin. Required of Senior mining- and chemical-engineering students. Prerequisite, chemistry 3. Rowland.

92.—METALLURGICAL LABORATORY. Either semester, two hours. By appointment. Pyrometric and calorimetric measurements, preparation of

silicates and alloys, oxidization and reduction reactions, amalgamation, chlorination, cyaniding and leaching, etc. Optional for Juniors, Seniors, and graduate students who have taken or are taking course 90 or course 91. Estes.

93.—GENERAL METALLURGY. Two hours credit. First semester, Tu. Th., 11:30. Physical properties of metals and alloys, thermal analysis, the measurement of high temperatures, refractories, slags, matte bul-
—, Estes.
lion, typical metallurgical operations. Required of chemical engineers.

95.—METALLOGRAPHY. Two hours credit. Second semester, by ap-
pointment. Laboratory and conferences. Prerequisite, metallurgy 90
or 93. Estes.

MINING ENGINEERING.

Professors: YOUNG, HUMBLE.

Associate Professor: GRIDER.

Assistant Instructor: ———.

50.—MINE SURVEYING. One hour credit. Second semester, three hours per week, Tu., 9:30 to 12:30. Instruments and methods used for underground traverse and connection surveys; shaft plumbing and special problems. Field work includes survey of tunnels under campus and actual mine surveys. Prerequisite, civil engineering 1 and 2. Young.

52.—MINING LAW. One hour credit. Second semester, alternate years. Outline of the laws relating to the mining industries. Recita-
tions and lectures. Next given in 1922. Humble.

53.—ORE DRESSING I. Two hours credit. First semester, one lecture, Tu., at 9:30, and three hours of laboratory work, Th., 1:30 to 4:30. Preliminary breaking, roll crushing, jigging, coarse screening, coal washing. Required of students in coal and metal mining. A modified course covering textbook principles, open to Juniors and Seniors in the College and in the School of Engineering, is offered as a three-hour credit option. Lec-
tures and recitations. Grider.

54.—METAL MINING. Two hours credit. First semester, Tu. Th., at 8:30. Methods of prospecting and mining mineral deposits; study of special methods and costs of working large deposits; ventilation; control and measurement of air currents; surface and underground haulage; compressed-air application. Prerequisite, mining engineering 1 or 68. Young.

55.—MINING HYDRAULICS. Two hours credit. Either semester, Tu. Th., at 9:30. Theory of hydraulics, flow through orifices, tubes, and pipes; flow in conduits and rivers; measurement of water; hydraulic motors, pumps and hydraulic machinery; gravel deposits, drift mining, ground sluicing, hydraulic mining, river mining, dredging, and drainage. Grider.

56.—MINE PLANT AND MILL DESIGN I. Two hours credit. First semester. One lecture, Th., at 9:30, and three hours drafting, M., 1:30 to 4:30. Graphic statics, beams and trusses, building materials, foundations; calculations relating to machine parts, transmission of power by bands, riveted joints, etc.; elementary design of mine buildings, trestles, or bins, headframes, etc. Grider.

57.—MINE ADMINISTRATION. One hour credit. Second semester, F., at 8:30. Business management, mine accounts and cost sheets. Mine acci-
dents, care of sick and injured. Sanitation of camps. Young.

58.—ORE DRESSING II. Four hours credit. Second semester. Two lectures, Tu. Th., at 11:30, and six hours laboratory, W. F., 1:30 to 4:30. Fine crushing and screening machinery, sand and slime concentration, flotation, stamp milling, amalgamation, cyanidation, classification, re-
grinding, mill sampling, miscellaneous processes of separation, and nec-
essary apparatus. Required of students in metal mining. Grider.

59.—**MINE EXAMINATION AND REPORTS.** Two hours credit. Second semester, Tu. Th., at 8:30. Sampling tools; sampling fissure veins, coal, seams, placer deposits, tailings, mill products, gases, liquids, etc.; preparing samples for the assayer; recording assays, assay maps and surveys; underground, milling and metallurgical losses; estimating tonnage; mine examination and camp equipment; writing reports. Grider.

60.—**PROFESSIONAL THESIS.** Two hours credit. This may be description of a mining or metallurgical plant, or of a mining district, or may be work done in connection with course 61, 62, 63, or 66, or may be founded upon research work done at the University. Young, Grider.

61.—**COAL MINING I.** Two hours credit. First semester, Tu. Th. Properties of mine gases, safety lamps, explosives, ventilation, causes and prevention of explosions. Young.

62.—**COAL MINING II.** Three hours credit. Second semester, M. W. F., at 9:30. Systems and methods of working coal, extraction, haulage, hoisting, coal-cutting tools, coal cutting machinery, excavating machinery, mine cars and tracks etc.; surface plants. Prerequisite, mining engineering 1 and 61. Young.

63.—**MINE PLANT AND MILL DESIGN II.** Three hours credit. Second semester, 1 lecture, W., at 10:30, and 6 hours drafting, M. F., 1:30 to 4:30. For Senior and graduate students. Advanced course in design, construction and installation of mine plants, concentrating mills, machinery, head-frames, ore bins, dams, fans, foundations, tramways, flumes, sluices and pressure boxes. Preparation of working drawings, bills of materials, specifications and estimates. Prerequisite, mining engineering 56. Grider.

64.—**MINING ENGINEERING.** Three hours credit. First semester, M. W. F., at 9:30. The economic importance of geological irregularities affecting mine operations; mine maps; choosing methods and locating openings; theory of ventilation and compressed air; water supply; transportation; electricity as applied to mining; power problems; costs and conditions affecting costs. Prerequisites, mining engineering 54, and physics 1E and 2E. Grider.

65.—**SUMMER WORK.** Each candidate for a degree is required to give evidence of having had experience in some phase of mining work. This may be gained by an investigation of some mining district under the direction of an instructor for a period of six weeks, or by employment in mining work.

66.—**ADVANCED ORE DRESSING III.** Four hours credit. Both semesters, Senior or graduate students. Two lectures, T. Th., at 10:30, and 6 hours laboratory work, T. Th., 1:30 to 4:30. Principles and schemes of mill processes. Adapting processes to specific ores, each student to choose one of the following for special study: flotation or other concentration method; amalgamation; cyanidation; chlorination; chloridizing roast; lixiviation methods or coal preparation. Grider.

67.—**MINERAL LAND SURVEY.** Two hours credit. First semester, Senior and graduate students. One lecture and one afternoon. (a) Mineral land surveying; mining claims, timber, coal and stone lands; dam, mill, tunnel, and reservoir sites; ditch, flume, and pipe lines; preparation and filing legal documents; duties of United States deputy mineral surveyors. (b) Subdividing public lands, locating, relocating, and marking corners, making plats, reports, etc. Prerequisite, civil engineering 1 and 2. Grider.

1 or 68.—**ELEMENTS OF MINING.** Three hours credit. Second semester, M. W. F., at 11:30. Prospecting, boring, drilling, explosives (composition, manufacture and uses), rock breaking (shaft sinking, tunneling, etc.), open pit mining, developing, underground methods and support

of mine workings. Required of students in mining. Open to Juniors and Seniors in the College and School of Engineering. Young.

69.—MINING GEOLOGY. Two hours credit. First semester, T. Th., by appointment. Lithology: structure, texture, mineral and chemical composition, and the manner of formation and occurrence of igneous, sedimentary, and metamorphic rocks. Effects of faulting, folding and intrusion of igneous rocks. Geological problems confronting mining engineers. This course is adequate for all general field determinations and prospecting. Grider.

70.—COAL PREPARATION. Three hours credit. Second semester. The preparation of coal for the market. Screening; picking; conveying; loading; washing. Young.

71.—ECONOMIC HISTORY OF THE MINERAL INDUSTRIES. Five hours credit. Senior and graduate students. First semester. A study of developments in the United States from the earliest recorded events to the present. Young.

72.—ECONOMIC HISTORY OF COAL AND IRON. Three hours credit. Senior and graduate students. Second semester. A study of the development of these industries in the United States, and their effect on the economic life of the country. Young.

73.—RESEARCH COURSE. Five hours. Senior and graduate students. Each semester. A supervised investigation of subjects directly related to the mineral industries. Young.

74.—SEMINAR. One hour credit. Each semester. Preparation and presentation of technical papers. A study of conditions and events of importance in the mining industries. Young.

PHYSICAL EDUCATION.

Professor: NAISMITH.
Instructors: STANLEY, BELL.

FRESHMAN 1. First half-semester, recreative sports and games; second half-semester, calisthenics, apparatus work and swimming.

FRESHMAN 2. First half-semester, apparatus work, swimming, indoor games, etc.; second half-semester, track athletics, advanced swimming, outdoor games.

Freshmen are required to attend classes three periods per week. Special classes are organized for engineers at such times as the majority can attend, usually at 11:30 and 4:30.

Additional courses will be arranged for special work and for the prescribed work which cannot be done in class.

Upper class students may receive thorough medical and physical examination, with the results platted on a chart. When needed, special exercises will be prescribed.

Every student who uses the gymnasium, or who is a candidate for any University team, must pass a satisfactory medical and physical examination.

PHYSICS.

Professor: KESTER.
Associate Professor: RICE (M. E.).
Assistant Professor: STIMPSON.
Instructors: WARNER, BROWN (B. E.).

7a.—GENERAL PHYSICS. Five hours credit. First semester, four hours class, at 11:30; two hours laboratory at assigned periods; second semester, four hours class, at 10:30, two hours laboratory at assigned periods. A fundamental course of experimental lectures, recitations, and problems. Prerequisites, plane trigonometry and some knowledge of analytical ge-

ometry and calculus. First semester, M. E. Rice and other instructors; second semester, E. F. Stimpson and other instructors.

7b.—GENERAL PHYSICS. Five hours credit. First semester, four hours class, at 10:30, two hours laboratory at assigned periods; second semester, four hours class, at 11:30, two hours laboratory at assigned periods. A continuation of course 7a. First semester, E. F. Stimpson and other instructors; second semester, M. E. Rice and other instructors.

52.—THEORY OF ELECTRICITY AND MAGNETISM. Three hours credit. First semester, M. W. F., at 9:30. M. E. Rice.

56a.—ELECTRICAL MEASUREMENTS. One and one-half hours credit. First semester, three hours per week. M. Tu. of alternate weeks, 1:30 to 4:30. A laboratory course coördinate with 52. M. E. Rice.

56b.—ELECTRICAL MEASUREMENTS. One and one-half hours credit. Second semester, three hours; M. Tu. of alternate weeks, at 1:30 to 4:30. Continuation of course 56a. M. E. Rice.

For other courses in Physics, see The College and The Graduate School.

ROMANCE LANGUAGES.

Instructors: PERRY, CARMAN.

1.—ELEMENTARY FRENCH I. Five hours credit. First semester, 8:30, 9:30, 1:30, 2:30. The elements of French grammar; practice in speaking; easy reading. Perry, Carman.

2.—ELEMENTARY FRENCH II. Five hours credit. Second semester, 8:30, 2:30 and 3:30. A continuation of course 1. Reading of simple scientific prose texts, with practice in speaking and writing.

Perry, Carman.

(Instead of taking course 3, engineering students should take course 5. Those wishing course 4 may take it either semester in the College.)

5.—SCIENTIFIC FRENCH. Three hours credit. First semester, by appointment. Translation of some scientific text. Reading and reports of current French scientific and technical periodicals. The aim of this course is to give the students a reading knowledge of the French language of science for practical use in research work. Prerequisites, courses 1 and 2. Carmen.

For advanced courses in French, see The College.

SPANISH.

(See Hispanic Languages.)

TECHNICAL REPORTS AND THESES.

Special written reports are required from each student at certain times during his course of study, generally one in each semester of the Sophomore year, one in the Junior year, and one in the Senior year. A student enrolled for technical report I, II, III, or IV confers with his instructor for assignment of the subject on or before October 15 for the first semester, and on or before March 15 for the second semester. The finished reports must be in the instructors' hands by January 15 and May 15 of the respective semesters. Each report counts for one-half credit.

A thesis or an approved substitute course is required for graduation. (See "Thesis" in the description of courses of the professional departments.)

Standard requirements for the make-up of technical reports, theses, and other written papers are specified in an official circular to be had at the Dean's office.

SUMMER WORK.

In several of the courses of study practical work in one or two summers is required. This work is not measured in terms of credit hours, although in fixing the requirements for graduation one or two additional credit hours are required in those courses of study which do not include summer work.

There is usually abundant opportunity for students of Junior standing to find employment with industrial concerns, in work that is both remunerative and valuable as experience. Students of whom this work is required will submit to their department head professors full reports on the work which they have done under this arrangement.

INSPECTION TRIPS.

As a valuable adjunct to resident study at the University, inspection trips to various engineering works are required to be taken by students with their instructors. Such trips may be made to large machine shops, power plants, steam or electric railways, lighting systems, city water-works, sewerage systems, industrial chemical plants, cement works, mining plants, or smelters. Architectural-engineering students are expected to visit important buildings in course of construction. These trips may be made during regular sessions of the school or during vacation. Parties sometimes travel as far as Chicago or St. Louis. The trips requiring absence from other work and those involving considerable expense are indicated in the programs of required courses of study.

ENGINEERING EXPERIMENT STATION.

STATION STAFF.

FRANK STRONG, Ph. D., President.
P. F. WALKER, M. M. E. (Director), Industrial Engineering.
GEORGE C. SHAAD, E. E., Electrical Engineering.
HERBERT A. RICE, C. E., Mechanics.
GOLDWIN GOLDSMITH, Ph. B., Architectural Engineering.
F. B. DAINS, Ph. D., Chemical Engineering.
C. O. WILLIAMS, C. E., Civil Engineering.
F. H. SIBLEY, M. E., Mechanical Engineering.
C. M. YOUNG, E. M., Mining Engineering.

PURPOSES.

This department of University activity has been established for two reasons; first, to correlate and group together in a more systematic way the results of scientific investigation than heretofore has been done under the various departments; second, to foster, enlarge, and direct this work, especially along lines of value to this state, and to supervise the publication and distribution of the results of engineering and industrial research work.

The work completed and published up to the present time has been done mainly by members of the teaching staff. It is described in detail in Section XII of the complete Catalog. Lists of all publications and of those soon to be issued are given. All communications relative to the Station and its work should be addressed to the Director.

SECTION V.

School of Fine Arts.

(239)

FACULTY.

- FRANK STRONG, Ph. D., Chancellor of the University, and President of the Faculties.
- HAROLD L. BUTLER, A. B., Dean of the School of Fine Arts, and Professor of Voice.
- CARL A. PREYER, Mus. D., Associate Dean of the School of Fine Arts, and Professor of Piano and Composition.
- CHARLES G. DUNLAP, Litt. D., Professor of English Literature.
- EDWIN M. HOPKINS, Ph. D., Professor of Rhetoric and English Language.
- WILLIAM A. GRIFFITH, Professor of Drawing and Painting.
- EUGENIE GALLOO, A. M., Professor of Romance Languages and Literatures.
- CHARLES S. SKILTON, A. B., Professor of Organ, History of Music, and Theory.
- JAMES NAISMITH, M. D., Professor of Physical Education.
- ELMER F. ENGLE, A. M., Professor of German.
- WILLIAM B. DOWNING, Professor of Voice.
- RAPHAEL D. O'LEARY, A. B., Professor of English.
- ARTHUR NEVIN, Professor of Choral Music, Ensemble, and Music Extension.
- WILLIAM M. HEKKING, B. P., Professor of Drawing and Painting.
- FRANK E. KENDRIE, A. M., Professor of Violin and Orchestral Playing.
- SELDEN L. WHITCOMB, A. M., Professor of Comparative Literature.
- LOUIS E. SISSON, A. M., Professor of English.
- WILLIAM S. JOHNSON, Ph. D., Associate Professor of English Literature.
- ELISE NEUEN SCHWANDER, Ph. D., Associate Professor of Romance Languages.
- JOHN R. FRAZIER, Associate Professor of Drawing and Painting.
- LILA S. WELLINGTON, Associate Professor of Voice.
- EDWIN F. STIMPSON, B. S., Assistant Professor of Physics.
- HARRIET GREISINGER, Mus. B., Assistant Professor of Piano.
- ANNA SWEENEY, Mus. B., Assistant Professor of Piano.
- MARIA L. BENSON, A. B., Instructor in Design.
- MAUD MILLER, Mus. B., Instructor in Piano.
- CORA I. REYNOLDS, Mus. B., Instructor in Voice.
- GORDEN L. CRAM, A. M., Instructor in Romance Language.
- MINERVA HALL, Instructor in Public School Music.
- GUSTAVE F. SODERLUND, Instructor in Piano.
- SEVERIEN Z. HERB, Instructor in Band and Orchestral Instruments.
- CHARLES V. KETTERING, Instructor in Voice and Sight Singing.
- MORA MORELAND PECK, Instructor in Harp.

SCHOOL OF FINE ARTS.

DEPARTMENTS.

The School of Fine Arts is made up of the following departments:
(1) Music; (2) Drawing and Painting.

EQUIPMENT.

IN MUSIC. In September, 1919, the music department of the School of Fine Arts occupied the central portion of the Administration Building, where it has an ample number of classrooms, practice rooms, and studios. The department has ten concert grand pianos and sixteen upright pianos; a three-manual electric pipe organ, which has recently been rewired; a piano with organ pedals; charts for sight reading, and a Victrola with several hundred music records.

IN DRAWING AND PAINTING. The department of drawing and painting occupies the upper floor of the east wing of the Administration Building, where it has seven specially constructed, top-lighted studios. It has a complete equipment of the objects used in teaching drawing, design, and painting. In the Mining Building it has clay and porcelain mixers and kilns for the use of its students in modeling, design, and pottery. The Thayer Art Museum and the Brynwood Collection of Paintings (see pages 249 and 250) are open to all students.

THE LIBRARY. The University Library contains a large collection of works on art, including art exposition and criticism; full sets of the classic and modern music works, with many books on musical art and criticism; a large collection of vocal and orchestral scores of operas, oratorios and cantatas; biography, music, history and criticism; symphonies and overtures, chamber music, ensemble music, pianoforte and organ music. These collections are annually increased. In addition each department has a large departmental library.

THE FACULTY.

The professional faculty of the School of Fine Arts is made up of instructors who have had the advantage of the finest training to be secured in this country, and, in addition, many of them have had extended European training. Each one has had a large experience before the public—in concert, opera or oratorio—and is able to give practical advice to his students in these matters. No instructor with less than five years' teaching experience is engaged for the faculty, so students may be sure that they are in the hands of thoroughly experienced teachers. Many members of the faculty are authors, composers, and artists of rank and merit, their works having been issued by representative publishing houses. Each instructor is a specialist in his particular work, and represents the best thought and method of modern pedagogy along that line.

CURRICULA.

Curricula Leading to Degrees.

The curricula in the School of Fine Arts leading to degrees are as follows:

Four-year courses in piano, voice, violin, organ, and composition, leading to the degree Bachelor of Music.

A four-year course in drawing and painting, leading to the degree Bachelor of Painting.

All candidates for a degree must spend at least two years in residence at the University.

Curricula Leading to an Artist's Certificate.

There are also four-year curricula in voice, piano, organ, violin, and drawing and painting, leading to an artist's certificate in these subjects.

These curricula are designed to accommodate those students who are unable to meet the scholastic requirements of the regular courses in piano, voice, violin, organ, or drawing and painting; or those who do not wish to carry the studies in the College which are required of students in the courses leading to a degree; or those who wish to specialize with the idea of fitting themselves as teachers of the various subjects.

For entrance to these courses twelve units of academic high-school work are required, and also the same musical requirements as for the degree courses.

The studies demanded for the completion of these courses are the same as for the completion of the degree courses, omitting the studies in the College.

Curricula Leading to a Teacher's Certificate.

Three-year curricula in voice, piano, organ, violin, and drawing and painting lead to a teacher's certificate in these subjects.

The three-year curricula are the same as the first three years of the artist's certificate curricula, with the same entrance requirements. Candidates for the three-year teacher's certificate in piano or violin must present credits in one year of teaching materials in piano or violin, with one year of practice teaching.

Public-School Music—Public-School Drawing.

Two-year curricula in public-school music and in public-school drawing lead to certificates in these subjects.

The two-year curricula are designed to prepare students as teachers of music or of drawing and painting in the grades and high schools of the state. The requirements for entrance are the same as for the College: viz., fifteen units of high-school work.

Upon the completion of these courses the State Board of Education will issue a special state certificate entitling the holder thereof to teach music or drawing and painting in any of the grade or high schools of the state.

ADMISSION.

There are two methods of admission to the School of Fine Arts: First, by examination; second, by certificate.

1. By Examination.

Students who cannot present certificates from accredited high schools will be examined in the subjects required for entrance. The times and place of examination are set forth in the General Information section.

2. By Certificate.

Students will be admitted without examination on certificates from accredited high schools, or other recognized preparatory schools, signed by the proper school officer.

Academic Requirements for Admission.

For admission to the courses leading to the degrees Bachelor of Music or Bachelor of Painting, the requirements are the same as for admission to the College; viz., graduation from an accredited high school, or the completion of fifteen units of high-school work.

Additional Admission Requirements in Music.

IN PIANO AND ORGAN. Students desirous of taking piano or organ as a major must have completed the following preparatory piano course, intended to parallel the four years of high-school study, before admission to the Freshman class.

Students who have nearly completed the course will be admitted with condition on recommendation of the head of the department. An examination in fourth-year work is required. While the School of Fine Arts prefers this course of study, students who have been prepared with Lambert's or Mathews' Graded Studies, Mason's Touch and Technic, or other recognized methods, may offer them as a substitute.

For the benefit of schools and teachers who may prepare students for entrance to the School of Fine Arts, this preparatory course is given in detail. It is not intended that all the material in this course should be covered by any one student. A small amount of material from each year, well done, is more acceptable than a large amount poorly done.

The pieces given merely indicate the style and difficulty of the compositions to be studied. They are intended to serve as a guide to the teacher in the selection of material.

All or any part of this course may be studied in the School of Fine Arts, should the student be unable to secure adequate preparation elsewhere.

PREPARATORY PIANO COURSE.**FIRST YEAR.****TECHNIC.**

- Correct position at the piano.
- Five finger exercises for developing strength and independence.
- Two principal touches—legato and staccato.

METHODS.

One of the following:

- Lambert Pianoforte Method.
- Streland Elementary Material.
- Lebert and Stark, Book 1.
- Piano methods of Kohler and Czerny.
- Russell, First Steps in Interpretation.

(These methods to be used only long enough to prepare for the following material.)

TECHNIC.

- Mentor Crosse—Daily Exercises, Vol. 1 (John Church & Co.).
- Preparatory Scale Exercises.

STUDIES.

Select material from the following:

- Kohler—Op. 157 (for technical development).
- Duvernoy—Op. 17 (for technical development).
- Crosby-Adams—Four Wrist Studies.
- Burgmuller—Op. 100 (for phrasing, expression and rhythm).
- Concone—Op. 24 (for phrasing, expression and rhythm).
- Loeschhorn—Op. 65, Books 1 and 2.

PIECES.

- By Ellsworth, Watson, Dutton, Crosby-Adams, Aldrich, Vincent, Gaynor, etc.

OBJECTS OF STUDY IN THE FIRST YEAR.

1. A correct position at the piano.
2. Proper position at the wrist, hand and arm.
3. Relaxation of hand and arm.
4. 2-3-4-5 finger exercises, with well-curved, firm fingers.
5. Legato and staccato touches.
6. An understanding of the common musical terms.
7. Proper method of phrasing.
8. Methods of practice.
9. Development of sense of rhythm.
10. Memorizing.

SECOND YEAR—FIRST SEMESTER.

TECHNIC.

Mentor Crosse, Vol. 2 (continued).

STUDIES.

Selected from the following:

Loeschhorn—Op. 65, Book 3 (for technical development).

Preyer—Ten Wrist Studies (for technical development).

Heller—Op. 47 (for phrasing, expression and rhythm).

Stamaty—Op. 37 (for phrasing, expression and rhythm).

PIECES.

Reinecke—Children's Songs, arr. Carrie Alchin.

Von Wilm—Twelve Short Pieces.

Gade—Op. 36, The Children's Christmas Eve.

Friml—Op. 72, No. 3, Minuetto.

MacDougall—Studies in Melody Playing.

Preyer—Op. 38, Six Easy Pieces.

SECOND YEAR—SECOND SEMESTER.

TECHNIC.

Mentor Crosse, Vol. 2 (continued).

STUDIES.

Selected from the following:

Lemoine—Op. 37 (for technical development).

Loeschhorn—Op. 66, Book 2 (or technical development).

Mayor—Pedal Studies at the Piano (or technical development).

Bertini—Op. 29 (for phrasing, expression and rhythm).

Bach for Beginners, Vincent (for phrasing, expression and rhythm).

PIECES.

Friml—Op. 79, No. 5, Contentment.

Heller—A Curious Story.

Kullak—Op. 62, Scenes from Childhood.

Rogers—At the Spinning Wheel.

Dennee—Tarantella.

Rheinhold—Suite Mignonne.

Hannah Smith—Five Plantation Dances (for rhythm).

Emery—Brown Eyes.

German—Henry VIII Dances (duet).

OBJECTS OF STUDY IN THE SECOND YEAR.

1. Simple major and minor scales.
2. Easy wrist work in thirds and sixths.
3. Development of melody touch.
4. Simple studies in broken chords.
5. Portamento touch.
6. First pedal studies.

THIRD YEAR—FIRST SEMESTER.

TECHNIC.

Mentor Crosse, Vol. 3.

STUDIES.

Selected from the following:

Loeschhorn—Op. 66, Book 2.

Heller—Op. 46.

Preyer—Op. 44.

Bach—Easy Preludes.

Sonatinas by Clementi, Kuhlau, Dussek, etc. (Edition Steingraber, No. 19).

PIECES.

Grieg—Albumblatt, E. Minor.

Lack—Idilio, Op. 134.

Durand—Chaconne, Op. 62.

Merkel—Spring Song, Op. 18, No. 1.

Saar—Berceuse Mignonne.

Moszkowski—Scherzino, Op. 18, No. 2.

Raff—Fabliau, Op. 75, No. 2.

THIRD YEAR—SECOND SEMESTER.

TECHNIC.

Mentor Crosse, Vol. 3 (continued).

STUDIES.

Selected from the following:

- Loeschhorn—Op. 66, Book 3.
- Krause—Op. 15, Ten Studies for the Left Hand.
- Krause—Op. 2, Trill Studies.
- Perry—Wrist Studies.
- Bach—Easy Preludes (continued).
- Sonatinas by Clementi, Kuhlau, Dusseck, etc. (continued).
- Grieg—Op. 12, Lyrical Pieces, Schumann Album for the Young.

PIECES.

- Lack—Le Chant du Ruisseau, Op. 92.
- Scharwenka, Ph.—Moment Musicale, A Major.
- Mildenberg—Arabian Night.
- Sternberg—Historiette Musicale, Op. 50, No. 2.
- Rimsky—Korsakoff-Novelllette, Op. 12, No. 2.
- Bendel—Spinning Song.

OBJECT OF STUDY IN THE THIRD YEAR.

1. Study of chord playing.
2. A, B, C major, minor and chromatic scales.
3. Triad arpeggios and their inversions.
4. Rhythms of 2 against 3.
5. Trill exercises.

FOURTH YEAR—FIRST SEMESTER.

TECHNIC.

Mentor Crosse, Vol. 4.

STUDIES.

Selected from the following:

- Heller—Op. 45.
- Czerny—Op. 299, Book 1 and 2.
- August Hoffman—Left-hand Studies (after Bertini).
- Loeschhorn—Op. 67, Book 1.
- Bach—The Easy Two-part Inventions.

SONATAS.

- Mozart—No. 1, C Major.
- Haydn—No. 5, C Major.
- Beethoven—Op. 49, Nos. 1 and 2.

PIECES.

- Whiting—La Fileuse.
- Chaminade—Air de Ballet, Op. 30, No. 1.
- Godard—Novelloza, Op. 47.
- Godard—Au Matin, Op. 83.
- Rheinberger—Ballade in G Minor.
- Grieg—Papillon, Op. 43, No. 1.
- Jensen—Will o' the Wisp.
- Moszkowski—Polonaise, Op. 18, No. 5.
- Schuett—Etude Mignonne, Op. 16.

FOURTH YEAR—SECOND SEMESTER.

TECHNIC.

The Little Pischna.

STUDIES.

- Czerny—Op. 299, Book 3 and 4.
- Bach—Two-part Inventions (continued).

SONATAS.

- Mozart—No. 4, in F.
- Hollander, Alex.—Intermezzi for the Left Hand, Op. 31.
- Haydn—No. 7, in D Major.
- Beethoven—Op. 14, No. 1 and 2.

PIECES.

- Scharwenka—Staccato Etude, Op. 40.
 Grieg—Op. 40, No. 5.
 Preyer—Dialogue Without Words.
 Dubois—Scherzo et Choral.
 Liebling—Serenade, Op. 34.
 Saint-Saëns—The Swan (Kunkel edition).
 Debussy—Arabesque, No. 2, in G Major.
 Hoffman—Polonaise, Op. 55, No. 3.

OBJECT OF STUDY IN THE FOURTH YEAR.

1. Scales in sixths and tenths.
2. Dominant and diminished seventh arpeggios and their inversions.
3. Octave exercises.
4. Study of embellishments.
5. Independence of fingers developed through polyphonic playing.

Entrance Requirements in Voice.

Students desirous of studying voice as a major subject must have completed at least *one year* of the following two-year preparatory vocal course before admission to the Freshman year. As the study of voice cannot properly be carried on without knowledge of the piano, the candidate for admission must have completed at least *one year* of the four-year preparatory piano course outlined on page 243.

PREPARATORY VOCAL COURSE.**FIRST YEAR.**

THE OBJECT OF STUDY.

1. A proper position of the head and body.
2. A systematic control of the breath.
3. A proper method of tone attack.
4. A proper method of tone release.
5. Correct tone placement through the medium range of the voice.
6. A correct method of sustained and legato singing.
7. Development of an even scale.
8. A proper use of the pure vowels.
9. Correct pronunciation and distinct enunciation in singing English.
10. Simple songs in English.

MATERIALS USED MAY BE SELECTED FROM—

- Sieber—36 Measure Vocalises, for all Voices.
 Clippinger—Systematic Voice Training.
 Behnke and Pearce—Voice Training.
 Marzo—Art of Vocalization—Preparatory Course.
 Shakspeare—Vocal Method.
 Simple Songs in English.

SECOND YEAR.

OBJECTS OF STUDY.

1. A continuation of work in the first year, with special emphasis on proper breath control.
2. Primary work in agility.
3. Voice extension.
4. Staccato and semi-staccato.
5. Long and short vowels.
6. Short scales and arpeggios.
7. Simple songs in English.

MATERIAL TO BE USED MAY BE SELECTED FROM THE LIST ABOVE, AND FROM—

- Concone—Op. 50.
 Bordogni—Exercises for Agility.
 Marzo—Art of Vocalization, Book 1.
 Spicker—Masterpieces of Vocalization, Book 1.
 Songs, by Schubert and other standard composers, in English.

Entrance Requirements in Violin.

Students desirous of studying the violin as a major must have completed the following preparatory course, intended to parallel three years of high-school study, before admission to the Freshman year. For the benefit of schools or teachers who may prepare students for entrance to the School of Fine Arts, this course is given in detail. It is not intended that all the material in the course should be covered by any one student. A small amount of material, from each year, well done, is more acceptable than a large amount poorly done. Students who have nearly completed the course will be admitted with a condition on recommendation of the head of the department.

All or any part of this course may be studied in the School of Fine Arts, should the student be unable to secure adequate preparation elsewhere.

PREPARATORY VIOLIN COURSE.

FIRST YEAR.

OBJECTS OF STUDY.

1. Correct position of holding violin.
2. Correct position of wrist, hand and fingers of left hand.
3. Correct position of arm, hand and fingers of right hand.
4. Exercise for legato, full-bow staccato and half-bow staccato.
5. Understanding common musical terms.
6. Methods of practice.
7. Development of sense of rhythm.
8. Memorizing.

STUDIES.

Laoureux—Book I.
 Kelly—Book I.
 Sevcik—Violin Technic, Op. 1, Part I.
 Dancla—Ecole de Mechanism.
 Gordon—Formation Studies for the Violin, Book I.

SOLOS.

Philip Mittell—Graded Course, Vol. I.
 Pleyel—Duet, Op. 8.
 Twenty-five Pieces in the First Position (Schirmer edition).
 The Violinist's Album, Vols. I, II, III (Augener edition).
 Kendrie—Four Elementary Studies.

SECOND YEAR.

OBJECTS OF STUDY.

Continuation of the first year:

1. Study of scale construction.
2. Exercises for flexibility of bow, arm and wrist.
3. Development of Martele bowing.
4. Development of left wrist and arm for shifting.

STUDIES.

Laoureux—Books II, III, IV.
 Dancla—Book II.
 Schubert—Book II.
 Sevcik—Op. 8.
 Wohlfahrt—Op. 75, Book II.
 Kayser—Book II.
 Sitt or Schradieck—Scale studies.

SOLOS.

Philip Mittell—Graded Course, Vol. II.
 Seitz—Classical sonatínas of Beethoven and Clementi (B. M. Co. ed.).
 Solos by Dancla, Thome, Bohm, together with transcriptions of the smaller compositions of Mozart, Haydn, Beethoven, Wagner and Humperdinck.

THIRD YEAR.

OBJECTS OF STUDY.

Continuation of the second year:

1. Three-octave scale.
2. Spiccato, slurred staccato bowing.
3. Chords, double-stopping and arpeggios.

STUDIES.

Mazas—Books I and II.
 Kayser—Books II and III.
 Sevcik—Scale Studies and Double-stopping.
 Alard—Scales.
 Dout—Preparatory Studies.

SOLOS.

Solos by Drdla, Wieniawski, de Beriot.
 Concertos by Seitz, Accolay and Viotti.
 Violin Classics, Vols. I to V, Schirmer.

Entrance Examinations.

Owing to the fact that students are generally out of practice during the summer, entrance examinations in the above work can be taken any time up to October 1. Students intending to enter should write the Dean of the School of Fine Arts about September 1, signifying such intention and arranging for interviews with the heads of the various departments.

Special Students.

All persons who desire to pursue a special line of work, without conforming to the requirements for entrance or following a prescribed course, may apply for admission as special students to the Dean of the School of Fine Arts. The Dean's certificate of acceptance must be presented to the Registrar before registration.

Special students desiring credit toward a degree or a certificate are subject to the same regulations as regular students as to the quality of work, attendance at recitals and examinations. *Nonresident special students who are not regularly enrolled in some other school of the University will be expected to carry not less than ten hours work, of which, in the case of music students, there must be two hours of theory.*

Admission to Advanced Standing.

Credit for work of collegiate or professional standing is granted only on recommendation of the Advance Standing Committee.

For regulations governing the granting of such credit, see "Admission to Advanced Standing," Section I, General Catalog, page 50.

REGISTRATION.

All candidates for admission having certificates from accredited schools, and all students of the University intending to pursue their studies during the ensuing year must present themselves for registration at the University on September 13, 14, 15, 1920. *Registration at a later date will be permitted only on the payment of a fee of one dollar.*

ENROLLMENT.

After registration has been completed with the Registrar and after fees have been paid, students should apply to the Dean for enrollment in their classes. Enrollment the first semester occurs September 14, 15, and on the first day of the second semester. *Enrollment at a later date will be permitted only on the payment of a fee of one dollar.*

SPECIAL COURSES.

Ensemble.

Ensemble classes meet throughout the Sophomore and Junior years of the piano, organ, and violin courses. The first year is given over to four- and eight-hand music for one and two pianos. Standard symphonies and overtures and various modern pieces are studied. The second year is given over to playing with the strings, studying the standard trios, quartets and quintets. Violin students remain in the second-year class for two years, as there is no repetition of material used. *Two years of ensemble are required of all piano, organ, and violin students who are candidates for a degree or a certificate.*

Teaching Materials—Piano, Violin.

These courses are designed to aid piano and violin students in grasping the principles and methods of teaching these instruments. A thorough review of the materials—exercises, studies, and pieces—used in a thorough and well-graded course for these instruments, together with the best and most modern methods of presenting these materials to pupils of all ages. Actual practice in teaching is gained by teaching beginning and intermediate pupils under the guidance of instructors. *One year of teaching materials is required of all piano or violin students who are candidates for a three-year teacher's certificate in either piano or violin.*

Music History.

The Fine Arts course in music history occupies two hours for the Sophomore year and two hours for the Junior year. One of the features of the course is the great mass of illustrative materials used, by which the student hears the music performed and has ample opportunity of studying it from the tonal standpoint.

Sight Singing, Ear Training and Dictation.

This is a course necessary for the full development of the modern music student. *One year of this work is required of all Freshmen students in the degree and certificate courses, and two years of all public-school music students.* Advanced students are advised to repeat it until proficient.

Harp.

Students so desiring may have instruction on either the Irish or the concert harp.

Band and Orchestral Instruments.

All band and orchestral instruments are taught by an experienced and competent instructor. Special rates of tuition are made to regular members of the University Band or the University Orchestra.

GENERAL.

The Thayer Art Museum.

Through the generosity of Mrs. William B. Thayer, of Kansas City, Mo., the University has an art collection that is of unusual value to art students. It was made with this end in view and illustrates the development of design in textiles, ceramics, glassware, and costumes. There are a number of important paintings of the American school, Chinese and Japanese paintings, and 1,200 Japanese prints of exceptional merit. There are about 9,000 items in the collection, the most important being textiles, of which there are examples of Coptic and Byzantium textiles, Venetian embroidery of the fifteenth and sixteenth centuries, Chinese tapestries of the Ming period, Chinese embroideries, Indian and Persian

shawls and rugs, a large collection of Paisley shawls and American counterpanes. In Chinese art, the collection is rich in cameo glass, ceramics, and jade articles, over 100 being snuff bottles. In Japanese art objects are many inros, nitsukis, and combs done in carved ivory and lacquer; bronze castings; swords and sword guards; cloisonné, and ceramics.

The following well-known American painters are represented by important examples of their work: George Innes, J. S. Murphy, Winslow Homer, Homer Martin, Paul Dougherty, Emil Carlsen, Richard Miller, Jonas Lie and Robert Henri.

The following European painters are represented: Joseph Isreals, Mesdag and Sarolla Bastida.

There came with the Thayer collection about a thousand books upon art topics. The University has recently purchased the F. O. Marvin art library. These collections, added to the 3,500 books on art already in the University library, make it one of the largest and most valuable art libraries in the West. All are available to the student of art.

The Brynwood Collection of Paintings.

The Brynwood Collection of Paintings, belonging to the late B. M. Woodward of Lawrence, has been loaned, for an indefinite period, to the School of Fine Arts. The collection consists of about fifty oil paintings and a few water colors and pastels. There are paintings by Inness, Murphy, Charles Partridge Adams, Mesdag, Ciardi, Thaulow, Leemputten, W. T. Richards, Charles Davis, Edward Gay, Frank R. Green, Lamblinet, Vrolyk and others. These paintings are on view on the top floor of the East Wing.

Concerts and Recitals.

The University supports a course of eight concerts by artists of the highest rank. All fine arts music students are admitted to these concerts free of charge.

During the year 1919-'20, the following artists and organizations appeared at the University: Frieda Hempel, Reed Miller, Nevada Van der Veer, Emilio de Gogorza, Ethelynde Smith, Percy Grainger, Olga Steeb, Jacques Thibaud, Thurlow Lieurance, The Flonzaley String Quartet and the Minneapolis Symphony Orchestra in two concerts.

Public recitals and concerts are given frequently in Fraser Hall by members of the Faculty and by advanced students.

Recitals are given weekly by the students of the school, at which works studied in the classroom are performed before a small audience of fellow students and friends. All music students are required to attend these recitals and all concerts, and to present each semester a record of attendance. These semipublic appearances are of great assistance in enabling the student to acquire the ease and self-possession so essential to a successful public performance.

Art Exhibitions.

Frequent exhibitions of works of art are held at the University, together with a course of lectures upon subjects related to the fine arts. At the close of the year there is held an exhibition of work done by pupils of the department of drawing and painting.

University Chorus.

The University Chorus is supported by the University. Only the finest choral works are studied, and two concerts are given annually. Weekly rehearsals are held in Fraser Hall. During the four years of the

degree course thorough knowledge of at least eight great choral works is gained. In addition, many fine miscellaneous choruses are performed.

University Orchestra.

The University supports an orchestra of 40 pieces, made up of students and amateur musicians from the city. Weekly rehearsals are held and two concerts are given annually. The orchestra is also used in the performance of concertos for the various solo instruments, and in playing the accompaniments for the choral works sung by the University Chorus.

University Band.

The University Band of 50 pieces is made up wholly of University students. It rehearses weekly and gives two annual concerts.

Glee Clubs.

A Men's Glee Club and a Women's Glee Club, conducted by members of the music faculty, give opportunity for the study and performance of the standard and lighter compositions for men's and women's voices. Each club gives an annual concert, and the Men's Glee Club makes a trip during the holidays.

Scholarships.

MRS. JOHN T. STEWART of Wellington, Kan., has given a scholarship in the sum of \$50; open to music students. Held in 1919-'20 by Alexander Gatewood.

MRS. JOHN T. STEWART of Wellington, Kan., has given a scholarship in the sum of \$50; open to art students. Held in 1910-'20 by Josephine Fulks.

MAYOR GEORGE L. KREECK of Lawrence, Kan., has given a scholarship in the sum of \$50; open to music students. Held in 1919-'20 by Mabel McNary.

THE FINE ARTS FACULTY has given two scholarships in the sum of \$50 each; open to music students. Held in 1919-'20 by Adrian Pouliot and Doris Novel.

MR. GEORGE INNES of Lawrence, Kan., has given a scholarship in the sum of \$50; open to music students. Held in 1919-'20 by Fred Semon.

THE FINE ARTS FACULTY has given a scholarship in the sum of \$50; open to art students. Held in 1919-'20 by Katherine Larkin and Essie Bee Pumphrey.

MR. A. D. WEAVER, of Lawrence, Kan., has given a scholarship in the sum of \$25; open to music students. Held in 1919-'20 by Helen Kell.

Pianos for Practice.

The School of Fine Arts has eleven practice rooms, each containing a new Haines Bros. piano. A moderate fee to cover tuning and deterioration is charged for the use of the pianos in these rooms. Instruments can also be rented in town for from four to six dollars a month, and grand pianofortes at from seven to ten dollars a month.

EXPENSES.

A matriculation fee of ten dollars (to be paid but once) must be charged each student of Kansas entering any of the regular courses of the School of Fine Arts. Nonresidents of Kansas must pay a matriculation fee of fifteen dollars. Special students do not pay a matriculation fee.

The instructors in the School of Fine Arts receive compensation from the state for part of the work of the courses; the remainder must be paid for at rates indicated below.

If the student withdraws before the middle of the quarter, one-half of the tuition fee will be refunded. Should he withdraw after the middle of the quarter, no part of the tuition fee will be refunded. Should the student be withdrawn at any time on account of unsatisfactory work, no part of the tuition fee will be refunded. Only special students receive lessons during the week of the semiannual examinations.

All bills are payable quarterly in advance, and enrollment in classes will be permitted only upon the presentation of the treasurer's receipt for the quarter's tuition.

Rates for Regular Students.

The following rates are for the quarter of nine weeks, and with the exception of the work in public-school music or drawing and painting, are based on two half-hour private lessons a week in the major study, together with class work in harmony, music history, technic, sight singing and ear training, and all studies in the College or the School of Education.

First year....Piano, per quarter:

Lessons with Miss Greisinger, Miss Sweeney, Mr. Soderlund or Miss Miller.....	\$27.50
Voice, per quarter, lessons with Miss Reynolds....	27.50
Voice, per quarter, with other teachers.....	33.50
Violin, per quarter	27.50
Drawing and painting, per quarter.....	15.00
Public-school drawing, per quarter.....	10.00
Public-school music, per quarter.....	10.00

(Private lessons are subject to fees.)

Second year..Rates the same as for the first year.

Third year...Piano, per quarter:

Two a week with Prof. Preyer.....	\$40.00
One a week with Prof. Preyer and one with assistant	33.50
Organ, per quarter.....	33.50
Voice, per quarter.....	33.50
Violin, per quarter	33.50
Painting, per quarter.....	15.00

Fourth year..All courses leading to degrees, free to Kansas students.

To receive free tuition in the fourth year, students must be of full Senior rank in all required subjects and must have been in attendance at the School of Fine Arts for at least two years.

For nonresidents the same as for the third year.

For all certificate courses the same as for the third year.

Rates for Special Students.

The following rates are for the quarter of nine weeks, and cover only the subjects given:

Piano with Prof. Preyer, two a week.....	\$36.00
Piano with Prof. Preyer, one a week.....	20.00
Piano with Miss Greisinger, Miss Sweeney, or Mr. Soderlund, two a week.....	21.00

Piano with Miss Greisinger, Miss Sweeney, or Mr. Soderlund, one a week.....	11.00
Piano with Miss Miller, two a week.....	17.00
Piano with Miss Miller, one a week.....	9.00
Voice with Dean Butler or Prof. Downing, two a week.....	36.00
Voice with Dean Butler or Prof. Downing, one a week.....	20.00
Voice with Miss Wellington, two a week.....	30.00
Voice with Miss Wellington, one a week.....	16.00
Voice with Miss Reynolds, two a week.....	19.00
Voice with Miss Reynolds, one a week.....	10.00
Organ with Prof. Skilton, two a week.....	36.00
Organ with Prof. Skilton, one a week.....	20.00
Organ with Mr. Soderlund, two a week.....	21.00
Organ with Mr. Soderlund, one a week.....	11.00
Violin with Prof. Kendrie, two a week.....	27.50
Violin with Prof. Kendrie, one a week.....	15.00
Harmony, counterpoint, composition, in class, two a week.....	10.00
Sight singing, ear training and dictation, two a week, in class...	5.00
Ensemble in class	3.00
Technic, in class	5.00
Public-school music courses, in class.....	10.00

(Private lessons are subject to special fees.)

Public-school music courses, in class (to students already enrolled in another regular music course).....	5.00
Teaching materials, piano (with practice teaching).....	3.00
Teaching materials, violin (with practice teaching).....	3.00
Violin in class for public-school music students.....	3.00
Rent of violin, bow and case.....	1.50
Drawing, painting or design, in class.....	15.00
Drawing, painting or design, in class (part time).....	7.50
Public-school drawing and painting, in class.....	10.00
Band instruments with Mr. Herb, one a week.....	11.00
Band instruments with Mr. Herb, two a week.....	21.00
To regular members of the University Band or Orchestra:	
Band instruments with Mr. Herb, one a week.....	8.50
Band instruments with Mr. Herb, two a week.....	16.00
Harp with Mrs. Peck, one a week.....	20.00
Harp with Mrs. Peck, two a week.....	36.00

Piano Rental.

One hour daily for nine weeks.....	2.50
------------------------------------	------

CURRICULUM.

In September, 1916, all courses of study in the School of Fine Arts were arranged on the basis of 120 semester hours for graduation. Students entering the school, then or thereafter, must, before graduation, present credits in all *required* subjects and enough additional credits in *elective* subjects to make up the sum of 120 semester hours. Other elective subjects than those given in the following curriculum may be offered for credit, by arrangement with the Dean.

MAJOR AND ELECTIVE SUBJECTS.

Each regular music student working toward a degree or a certificate must carry a major subject in applied music—piano, voice, organ or violin—or a major subject in theoretical music—composition or public-school music. The student may also carry an *elective* subject in applied music, for which credit will be allowed as follows: piano, organ or violin, once a week, two hours credit per semester; twice a week, four hours credit per semester; voice, once a week, one and one-half hours credit per semester; twice a week, three hours credit per semester. Credit for the *elective* subject in music may be secured without regard to the student's previous study in this subject, with exception of regular vocal students, who must have completed one year of the preparatory piano course outlined on page 243 before credit can be secured for piano study.

COMBINATION COURSES.

Piano or violin students in the diploma courses may receive a teacher's certificate also, by completing one year of teaching materials in piano or violin, with practice teaching.

Piano, vocal, or violin students in the diploma courses may receive a certificate in public-school music also, by taking, during each semester of the four-year course, one additional subject from the public-school music course.

Art students in the diploma course may receive a certificate in public-school art also, by completing the eight hours of normal methods and nine hours of educational subjects.

Certificates in both public-school music and public-school art may be secured by study during three years and one six-weeks summer session.

PHYSICAL EDUCATION.

During the first semester every Freshman must attend a weekly lecture on hygiene, and spend two hours a week in the gymnasium. During the second semester he must spend two hours a week in the gymnasium.

During the entire year every Sophomore must spend two hours a week in the gymnasium.

PIANOFORTE.

Leading to the degree of Bachelor of Music.

During the first two years, piano students take their lessons from an assistant professor or an instructor. Exceptions are made when students are willing to pay the Junior tuition rate, and Professor Preyer has time to accommodate them. Students who wish to receive a teacher's certificate in piano must during their course of study complete one year of piano teaching materials, with practice teaching.

<i>First Semester:</i>	FRESHMAN YEAR.	Hours credit.
Piano 1, twice a week.....		5
Piano 9 (Technic)		1
Musical Theory 1 (Harmony). Kendrie.....		3
Sight Singing and Ear Training 1. Hall.....		1
Recitals 1		1
Rhetoric 1 (The College).....		3
Physical Education 20 (Hygiene).....		1
Exercise (two hours each week).		

<i>Second Semester:</i>		
Piano 2, twice a week.....		5
Piano 10 (Technic). Miller.....		1
Musical Theory 2 (Harmony). Kendrie.....		3
Sight Singing and Ear Training 2. Hall.....		1
Recitals 2		1
Rhetoric 2 (The College).....		2
Physical Education.		

Elective: Voice, Violin, Public-school Music, Modern Languages, etc.
(Private lessons are subject to fees.)

<i>First Semester:</i>	SOPHOMORE YEAR.	
Piano 3, twice a week.....		5
Piano 11 (Technic). Miller.....		1
Musical Theory 3 (Harmony). Skilton.....		2
History of Music 1. Skilton.....		2
English 10 (The College).....		2
Ensemble 1 (Pianoforte Ensemble). Nevin.....		1
Recitals 3		1
Physical Education.		

Elective: Voice, Violin, Public-school Music, Modern Languages, etc.
(Private lessons are subject to fees.)

<i>Second Semester:</i>		
Piano 4, twice a week.....		5
Piano 12 (Technic). Miller.....		1
Musical Theory 4 (Harmony). Skilton.....		2
History of Music 2. Skilton.....		2
English 11 (The College).....		3
Ensemble 2 (Pianoforte Ensemble). Nevin.....		1
Recitals 4		1
Physical Education.		

<i>First Semester:</i>	JUNIOR YEAR.	
Piano 5, twice a week. Preyer.....		6
Musical Theory 5 (Counterpoint). Skilton.....		2
History of Music 3. Skilton.....		2
Musical Theory 7 (Composition). Skilton.....		1
Ensemble 3 (String Ensemble). Nevin.....		1
Recitals 5		1

Elective: English 12, Modern Languages, Voice, Violin, Organ, etc.
(Private lessons are subject to fees.)

<i>Second Semester:</i>		
Piano 6, twice a week. Preyer.....		6
Musical Theory 6 (Counterpoint). Skilton.....		2
Musical Theory 8 (composition). Skilton.....		1
History of Music 4. Skilton.....		2
Ensemble 4 (String Ensemble). Nevin.....		1
Recitals 6		1
Acoustics, twice a week for ten weeks. Stimpson.....		1

Elective: English 13, Modern Languages, Voice, Violin, etc.
(Private lessons are subject to fees.)

SENIOR YEAR.

First Semester:

Piano 7, twice a week. Preyer.....	7
Musical Theory 11 (Instrumentation). Nevin.....	1
Musical Theory 15 (Canon and Fugue). Skilton.....	1
Recitals 7	1
Thesis 1.....	1

Electives:

Musical Theory 9 (Composition). Skilton.....	1
Musical Theory 13 (Form and Analysis). Skilton.....	1
(Required of students who did not take Composition in the junior year.)	
Other electives as in previous years.	

Second Semester:

Piano 8, twice a week. Preyer.....	8
Musical Theory 12 (Instrumentation). Nevin.....	1
Recitals 8	1
Thesis 2	2

Electives:

Musical Theory 9 (Composition). Skilton.....	1
Musical Theory 14 (Form and Analysis). Skilton.....	1
(Required of students who did not take Composition in the junior year.)	
Other electives as in previous years.	

ORGAN.

Leading to the degree of Bachelor of Music.

Three-year course, open to those who have completed the work of the Freshman year in piano.

SOPHOMORE YEAR.

For the Sophomore year the courses of study are the same as for the Sophomore year in piano, except that the student takes one lesson in piano and one lesson in organ each week, instead of two lessons in piano.

JUNIOR YEAR.

First Semester:

Hours credit.

Organ 3, twice a week. Skilton.....	5
Organ 8, once a week. Skilton.....	1
Musical Theory 5 (Counterpoint). Skilton.....	2
Musical Theory 7 (Composition). Skilton.....	1
History of Music 3. Skilton.....	2
Ensemble 3 (String Ensemble). Nevin.....	1
Recitals 5	1

Elective: English 12, Modern Language, Voice, Piano, Violin, etc.

(Private lessons are subject to fees.)

Second Semester:

Organ 4, twice a week. Skilton.....	5
Organ 9, once a week. Skilton.....	1
Musical Theory 6 (Counterpoint). Preyer.....	2
Musical Theory 8 (Composition). Skilton.....	1
History of Music 4. Skilton.....	2
Ensemble 4 (String Ensemble). Nevin.....	1
Recitals 6	1

Elective: English 13, Modern Languages, Voice, Piano, Violin, etc.

(Private lessons are subject to fees.)

SENIOR YEAR.

For the Senior year the courses of study are the same as for the Senior year in piano, substituting organ 5 and 6 for piano 7 and 8, and adding organ 7 (Church Music) in the first semester.

VIOLIN.

Leading to the degree of Bachelor of Music.

The courses of study in violin are the same as for the regular course in piano, except that violin 1 to 8 are substituted for piano 1 to 8, and orchestra 1 to 4 for piano 9 to 12.

Violin students are required to play in the University Orchestra during the four years of the course, unless excused by the Dean, on recommendation of the conductor. One hour credit each semester is allowed for orchestral playing.

Violin students remain in the String Ensemble classes for two years, receiving one hour credit each semester.

Violin students should be able to play simple piano accompaniments. Any deficiency in this respect must be made up before graduation.

VOCAL CULTURE.

Leading to the degree of Bachelor of Music.

Students in the regular course in voice should be able to play accompaniments of moderate difficulty. Any deficiency in this respect must be made up by private lessons before entering the Junior year.

FRESHMAN YEAR.

<i>First Semester:</i>	Hours credit.
Voice Culture 1, twice a week.....	3
Musical Theory 1 (Harmony). Kendrie.....	3
Sight Singing and Ear Training 1. Hall.....	1
Recitals 1	1
Rhetoric 1 (The College).....	3
Italian 1 (The College)	3
Physical Education 20 (Hygiene).....	1

Second Semester:

Vocal Culture 2, twice a week.....	3
Musical Theory 2 (Harmony). Kendrie.....	3
Sight Singing and Ear Training 2. Hall.....	1
Recitals 2	1
Rhetoric 2 (The College).....	2
Italian 2 (The College).....	3
Physical Education.	
<i>Elective:</i> Piano, Public-school Music, Violin, etc.	

(Private lessons are subject to fees.)

SOPHOMORE YEAR.

First Semester:

Vocal Culture 3, twice a week.....	3
Musical Theory 3 (Harmony). Skilton.....	2
History of Music 1. Skilton.....	2
English 10 (The College).....	2
German 1 (Fine Arts).....	3
Recitals 3	1
Chorus 1. Nevin.....	1
Physical Education.	
<i>Elective:</i> Piano, Public-school Music, Violin, etc.	

(Private lessons are subject to fees.)

Second Semester:

Hours credit.

Vocal Culture 4, twice a week.....	3
Musical Theory 4 (Harmony). Skilton.....	2
History of Music 2. Skilton.....	2
English 11 (The College).....	3
German 2 (Fine Arts).....	3
Recitals 4.....	1
Chorus 2. Nevin.....	1
Physical Education.	

JUNIOR YEAR.

First Semester:

Vocal Culture 5, twice a week.....	4
Musical Theory 5 (Counterpoint). Preyer.....	2
Musical Theory 7 (Composition). Skilton.....	1
History of Music 3. Skilton.....	2
French 1 (Fine Arts).....	3
Recitals 5.....	1
Chorus 3. Nevin.....	1
<i>Elective:</i> English 12, Piano, Vocal Seminar, etc.	

(Private lessons are subject to fees.)

Second Semester:

Vocal Culture 6, twice a week.....	4
Musical Theory 6 (Counterpoint). Preyer.....	2
Musical Theory 8 (Composition). Skilton.....	1
History of Music 4. Skilton.....	2
French 2 (Fine Arts).....	3
Recitals 6.....	1
Chorus 4. Nevin.....	1
<i>Elective:</i> English 13, Piano, Vocal Seminar, etc.	

(Private lessons are subject to fees.)

SENIOR YEAR.

First Semester:

Vocal Culture 7, twice a week.....	5
Musical Theory 11 (Instrumentation). Nevin.....	1
Musical Theory 15 (Canon and Fugue). Skilton.....	1
Recitals 7.....	1
Chorus 5. Nevin.....	1
Thesis 1.....	1

Electives:

Musical Theory 9 (Composition). Skilton.....	1
Musical Theory 13 (Form and Analysis). Skilton.....	1

(Required of students who did not take Composition in the Junior year).

Modern Languages, Piano, Violin, etc.

(Private lessons are subject to fees.)

Second Semester:

Vocal Culture 8, twice a week.....	5
Musical Theory 12 (Instrumentation). Nevin.....	1
Recitals 8.....	1
Thesis 2.....	2
Chorus 6. Nevin.....	1

Electives:

Musical Theory 9 (Composition). Skilton.....	1
Musical Theory 14 (Form and Analysis). Skilton.....	1

(Required of students who did not take Composition in the Junior year.)

Modern Languages, Piano, Violin, etc.

(Private lessons are subject to fees.)

DRAWING AND PAINTING.

Leading to the degree of Bachelor of Painting.

Students in drawing and painting are required to furnish their own materials, except easels.

All art work, when finished, is under the control of the instructors until after the close of the public exhibition of student work, at the end of the academic year.

FRESHMAN YEAR.

First Semester:

Hours credit.

1. Drawing	5
3. Composition	2
6. Sketch	2
5. Perspective and Anatomy.....	3
1. Rhetoric (College)	3
Hygiene	1

Second Semester:

9. Painting, or 2. Drawing.....	5
4. Composition	3
7. Sketch	2
8. Design	3
2. Rhetoric (College)	2
Physical Education.....	

SOPHOMORE YEAR.

First Semester:

10. Life Drawing	5
11. Painting, or 12. Design.....	5
14. History of Ornament, or 13. History of Painting.....	2
10. English Literature (College).....	2
Elective	1

Second Semester:

15. Life Drawing	5
16. Painting, or 17. Design.....	5
19. History of Ornament, or 18. History of Painting.....	2
11. English Literature (College).....	3

JUNIOR YEAR.

First Semester:

50. Life Drawing	5
51. Painting (<i>a, b, or c</i>), or 52. Design (<i>a, b, or c</i>).....	5
53. Composition, or Sketch, or Applied Design, or Normal Art..	2
Elective	3

Second Semester:

54. Life Painting	5
55. Painting (Landscape or Portrait), or 56. Design.....	5
57. Composition, Sketch, Applied Design (<i>a, b, or c</i>), or Normal Art	2
Elective	3

SENIOR YEAR.

First Semester:

58. Life Painting	5
60. Painting, or 59. Design.....	5
61. Composition, Sketch, Applied Design or Normal Art.....	2
62. Professional Materials	3

Second Semester:

Hours credit.

63. Life Painting	5
65. Painting, or 64. Design.....	5
66. Composition, Sketch, Applied Design or Normal Art.....	2
67. Professional Materials	3

PUBLIC-SCHOOL MUSIC COURSE.

Leading to Teacher's Certificate in Public-school Music.

The course in public-school music is designed to prepare students for the position of teacher and supervisor of music in grade and high schools. Only the best modern methods are employed, and the training is so closely graded that, at the end of the course, the student has prepared full courses of music study for all grades, beginning with the kindergarten and ending with the Senior year of the high school.

The School of Fine Arts has made arrangements with the board of education of the city of Lawrence whereby the city supervisor of music is also an instructor in the School of Fine Arts. During the Sophomore year all students spend two hours each week in observing and teaching music in the city schools.

Special attention is given to correct methods of conducting choruses and orchestras, and to the materials and methods in community music work.

At least one year of study in singing is required of students who have not had individual vocal instruction. Students must be able to play piano accompaniments to choruses and songs, or make up the deficiency by private lessons during their course.

Students must attend the University Chorus rehearsals during both years of the course, unless they are members of an acceptable church choir.

Teachers with normal training or experience in public schools and some preparatory work in music may be able to complete the two-year course in one year and a summer term of six weeks. Upon the completion of this course the State Board of Education will issue a special certificate entitling the holder thereof to teach music in any of the grade or high schools of the state.

As there is such a demand for orchestras in the high schools, a class in violin playing has been formed for the students in this course. In this class, proper methods of fingering and bowing are taught, and the student is given practical experience in the use of the violin as an orchestral instrument.

The School of Fine Arts rents violins to those students who may not possess an instrument.

Candidates for this certificate must offer 60 credit hours. The subjects in the following curriculum are *required*. Other subjects to complete the necessary 60 hours may be offered from the School of Fine Arts, by arrangement with the Dean.

FRESHMAN YEAR.*First Semester:*

Hours credit.

Public-school Music 1 (Grades 1, 2, 3 and 4). Hall.....	3
Musical Theory 1 (Harmony). Kendrie.....	3
History of Music 1. Skilton.....	2
Sight Singing and Ear Training 1. Hall.....	1
Chorus 1. Nevin.....	1
Recitals 1.	1
Physical Education 20 (Hygiene).....	1
<i>Electives:</i> Voice, Piano, Community Music, Violin, etc.	

(Private lessons are subject to fees.)

Second Semester:

Hours credit.

Public-school Music 2 (Grades 5, 6, 7 and 8). Hall.....	3
Musical Theory 2 (Harmony). Kendrie.....	3
History of Music 2. Skilton.....	2
Sight Singing and Ear Training 2. Hall.....	1
Chorus 2. Nevin.....	1
Recitals 2.	1
Elementary Education (School of Education).....	3
Physical Education.	
<i>Electives:</i> Voice, Piano, Supervisor's Violin, etc.	

(Private lessons are subject to fees.)

SOPHOMORE YEAR.

First Semester:

Public-school Music 3 (Junior and Senior High). Downing.....	2
Practice teaching in Lawrence city schools. Hall.....	1
Musical Theory 3 (Harmony). Skilton.....	2
History of Music 3. Skilton.....	2
Sight Singing and Ear Training 3. Downing.....	1
Conducting. Kendrie.....	1
Musical Theory 11 (Instrumentation). Nevin.....	1
Chorus 3. Nevin.....	1
Recitals 3.	1
General Psychology (The College).....	3
Physical Education.	
<i>Electives:</i> Voice, Piano, Supervisor's Violin, etc.	

(Private lessons are subject to fees.)

Second Semester:

Public-school Music 4 (Senior High). Downing.....	2
Practice teaching in the Lawrence city schools. Hall.....	1
Musical Theory 4 (Harmony). Skilton.....	2
History of Music 4. Skilton.....	2
Musical Theory 12 (Instrumentation). Nevin.....	1
Sight Singing and Ear Training 4. Downing.....	1
Conducting. Kendrie.....	1
Chorus 4. Nevin.....	1
Recitals 4.	1
Methods of Teaching (School of Education).....	3
Physical Education.	
<i>Electives:</i> Voice, Piano, Supervisor's Violin, etc.	

(Private lessons are subject to fees.)

PUBLIC-SCHOOL ART COURSE.

Leading to Teacher's Certificate in Public-school Art.

The course in public-school art is designed to prepare students for the position of teacher and supervisor of art in grade and high schools. In addition to the work in methods of teaching art in the public schools, strict attention is given to actual practice in free-hand drawing, perspective, composition, design, and artistic anatomy. To comply with the regulations of the State Board of Education, nine hours of educational work in the College and the School of Education is included in the course. Upon the completion of this course the State Board of Education will issue a special certificate entitling the holder thereof to teach art in any of the grade or high schools of the state.

SYLLABUS

This is a two-year course, requiring sixty credit hours for its completion.

For a description of these courses, see Drawing and Painting, on page 263.

	Hours credit.
Free-hand Drawing (courses 1, 2, 10 and 15).....	12
Perspective and Anatomy (course 5).....	3
Composition (courses 3 and 4).....	4
Design (courses 8, 12 and 17).....	13
Sketch (course 6)	2
Art History (courses 13 and 18)	4
Methods of Teaching Art in the Grade and High Schools (course 68),	8
(a) Normal Art Methods. Two hours. A general survey of the problems of art instruction in the public schools. High-school drawing and methods of teaching.	
(b) Normal Art Methods. Two hours. Design, pure and applied in the high school.	
(c) Normal Art Methods. Two hours. Art appreciation for the grade school. Materials and methods of teaching.	
(d) Normal Art Methods. Two hours. Study of courses for art instruction in the grade school, their organization and selection of materials.	
1a General Psychology (The College).....	3
1 Methods of Teaching (The School of Education).....	3
2 Elementary Education (The School of Education).....	3
Optional subjects from the School of Fine Arts, The College, or The School of Education	5
Total	60

DESCRIPTION OF COURSES.

The courses in English, French, Italian, German, General Psychology, Greek Architecture, Physical Education and Physics are given in the College. They are open to regular fine arts students, on application to the Dean of the School of Fine Arts, but students must also enroll with the Dean of the College. The courses in Elementary Education and Methods of Teaching are offered in the School of Education.

CHORUS.

Professor: NEVIN.

Chorus 1 to 6 are required of all vocal students in the degree or certificate courses.

Chorus 1 to 4 are required of all public-school music students.

CHORUS 1 TO 6.—Two hours rehearsal each week, with at least two public concerts each year. Study of the standard oratorios, cantatas, etc.; miscellaneous sacred and secular choruses. Throughout the year. One hour credit each semester. Nevin.

DRAWING AND PAINTING.

Professors: GRIFFITH, HEKKING.

Associate Professor: FRAZIER.

Instructor: BENSON.

All courses are required of students of drawing and painting and are open to other students of the School of Fine Arts who are prepared for them.

1.—FREE-HAND DRAWING. Drawing from the cast, in charcoal. The method of instruction aims to teach construction in a simple and correct manner. First semester, daily, 8:30 to 11:30.

2.—FREE-HAND DRAWING. Drawing in charcoal from objects of still life, the head and cast. Second semester, daily, 8:30 to 11:30.

3.—COMPOSITION. An original composition upon a given subject is required each week. First semester, Tu. Th., at 11:30.

4.—COMPOSITION. A continuation of course 3. Second semester, M. W. F., at 11:30.

5.—PERSPECTIVE AND ANATOMY. Linear perspective and the geometrical problems of mechanical drawing. Special attention is given to graphic methods that are of practical use in laying out a drawing. Nine weeks.

ARTISTIC ANATOMY.—Study of the bones and muscles of the human figure. Nine weeks. First semester, M. W. F., at 1:30.

6.—SKETCH. Quick-time sketches to show the action of the model. First semester, Tu. Th., at 1:30.

7.—SKETCH. Continuation of course 6. Second semester, Tu. Th., at 1:30.

8.—DESIGN. The fundamental principles of design. Second semester, M. W. F., at 1:30.

9.—PAINTING. Painting with oil, water-color or pastel from still life. Students begin the study of color in this class. The observation and reproduction of simple masses of form and color. Second semester, daily, at 8:30 to 11:30.

10.—FREE-HAND DRAWING. Free-hand drawing from the living model, in charcoal. This class gives the student an opportunity to study the human figure, as offered in all regular art schools. First semester, daily, 8:30 to 11:30.

11.—PAINTING. Advanced course in painting from still life in which the student makes studies of the art objects in the Thayer Art Museum. First semester, daily, at 3:30 to 4:30.

12.—DESIGN. A continuation of course 8. First semester. Harmonies of color are worked out by water color rendering of original designs. First semester, daily, 1:30 to 4:30.

13.—HISTORY OF MODERN PAINTING. With lectures, illustrated by lantern slides and reading in the library, covering the principal schools of painting in Europe. First semester, Tu. Th., at 1:30.

14.—HISTORY OF ORNAMENT. The general principles of historic ornament. First semester, Tu. Th., at 11:30.

15.—LIFE DRAWING. A continuation of course 10. Second semester, daily, at 8:30.

16.—PAINTING. A continuation of course 11. Second semester, daily, at 1:30.

17.—DESIGN. Application of design. Second semester, daily at 1:30.

18.—HISTORY OF AMERICAN PAINTING. The art of painting in the United States from its beginning to the present time. Lectures illustrated with original works of art and lantern slides, together with readings in the library. Second semester, Tu. Th., at 11:30.

19.—HISTORY OF ORNAMENT. Continuation of course 14. Second semester, Tu. Th., at 11:30.

50.—LIFE DRAWING. Drawing or painting from the nude model. First semester, daily, 8:30 to 11:30.

51.—PAINTING. (a) Still Life; (b) Portrait; (c) Landscape. First semester, daily, 1:30 to 4:30.

52.—DESIGN. Applied design. (a) Pottery; (b) Block printing; (c) Metal. First semester, daily, 1:30 to 4:30.

53.—COMPOSITION, OR SKETCH, OR NORMAL ART. First semester, Tu. Th., at 11:30.

54.—LIFE PAINTING. Continuation of course 50. Second semester, daily, 8:30 to 11:30.

55.—PAINTING. Continuation of course 51 (except Still Life). Second semester, daily, 8:30 to 11:30.

56.—DESIGN. Continuation of course 52. Second semester, daily, 1:30 to 4:30.

57.—COMPOSITION, OR SKETCH, OR NORMAL ART. Second semester, Tu. Th., at 11:30.

58.—LIFE PAINTING. Continuation of course 54. First semester, daily, 8:30 to 11:30.

59.—DESIGN. Continuation of course 56. First semester, daily, 1:30 to 4:30.

60.—PAINTING. Continuation of course 55. First semester, daily, 1:30 to 4:30.

61.—COMPOSITION, OR SKETCH, OR NORMAL ART. First semester, Tu. Th., at 11:30.

62.—PROFESSIONAL MATERIALS. A lecture and reading course upon the critical analysis of works of art. First semester, M. W. F., at 11:30.

63.—LIFE PAINTING. Continuation of course 58. Second semester, daily, 8:30 to 11:30.

64.—DESIGN. Continuation of course 59. Second semester, daily, 1:30 to 4:30.

65.—PAINTING. Continuation of course 60. Second semester, daily, 1:30 to 4:30.

66.—COMPOSITION, OR SKETCH, OR NORMAL ART. Second semester, Tu. Th., at 11:30.

67.—PROFESSIONAL MATERIALS. Continuation of course 62. Second semester, M. W. F., at 11:30.

68.—METHODS OF TEACHING ART IN THE GRADE AND HIGH SCHOOLS. Both semesters, Tu. Th., at 11:30.

(a) Normal Art Methods. Two hours. A general survey of the problems of art instruction in the public schools. High-school drawing and methods of teaching.

(b) Normal Art Methods. Two hours. Design, pure and applied in the high school.

(c) Normal Art Methods. Two hours. Art appreciation for the grade school. Materials and methods of teaching.

(d) Normal Art Methods. Two hours. Study of courses for art instruction in the grade school, their organization and selection of materials.

ENSEMBLE.

Professor: NEVIN.

Assistant Professor: GREISINGER.

1.—ENSEMBLE. The study of simple ensemble, beginning with the duet form and advancing to work at two pianos; symphonies by Haydn, Mozart, Beethoven; famous overtures; compositions by Grieg, Moszkowski, Bizet, Schubert, Jensen, Mendelssohn. Sophomore, first semester, Tu., 3:30 to 5:30. Nevin.

2.—ENSEMBLE. Continuation of Ensemble 1. Arrangements of classics for two pianos, four and eight hands; original two-piano compositions by Arensky, Debussy, Saint-Saëns, Chaminade, Grieg, Schumann. Sophomore, second semester, Tu., 3:30 to 5:30. Nevin.

3.—ENSEMBLE. The study of compositions for strings and piano. Compositions for two violins and piano by Purcell, Carse and others; for three violins and piano by Taylor, Trousselle, Rieding, Hayward, together with the smaller orchestral compositions of Bizet, Wagner, Nesler, Moszkowski, Saint-Saëns, etc. Junior, first semester, M., 3:30 to 5:30. Nevin.

4.—ENSEMBLE. Continuation of Ensemble 3. The study of the larger forms of composition; trios by Schubert, Beethoven, Strauss, Moszkowski; sonatas for violin and piano by Grieg, Gade, Brahms and Franck; concertos by De Beriot, Mendelssohn, Saint-Saëns and Wieniawski; string quartets by Haydn, Mozart, Schubert and Beethoven. Junior, second semester, M., 3:30 to 5:30. Nevin.

ENGLISH LANGUAGE AND COMPARATIVE LITERATURE.

Professors: DUNLAP, HOPKINS, O'LEARY.

Associate Professors: WHITCOMB, JOHNSON, SISSON, LYNN.

Assistant Professor: GARDNER.

1.—RHETORIC AND ENGLISH COMPOSITION. Three hours, first semester. Required of all Freshmen in the School of Fine Arts.

Gardner and assistants.

2.—RHETORIC AND ENGLISH COMPOSITION. Two hours, second semester. A continuation of course 1. Required of all Freshmen in the School of Fine Arts.

Gardner and assistants.

10.—ENGLISH LITERATURE. Two hours, first semester. Required of all Sophomores in the School of Fine Arts. Johnson and assistants.

11.—ENGLISH LITERATURE. Three hours, second semester. A continuation of course 10. Required of all Sophomores in the School of Fine Arts. Johnson and assistants.

12 and 13.—HISTORY OF ENGLISH LITERATURE. 12, three hours; 13, two hours, first semester. An elective for Juniors in the School of Fine Arts. Lynn and assistants.

14 and 15.—HISTORY OF ENGLISH LITERATURE. 14, two hours credit; 15, three hours credit, second semester. Course 14 is a continuation of course 12 and course 15, of course 13; 12 and 14, or 13 and 15 are required for admission to all subsequent courses in English literature.

Lynn and assistants.

FRENCH.

Professor: GALLOO.

Associate Professor: NEUEN SCHWANDER.

Assistant Professors: STANTON, MAHIEU.

1.—ELEMENTARY FRENCH. Five hours, both semesters.

Neuen Schwander and assistants.

2.—FRENCH READING AND GRAMMAR. Five hours, both semesters.

Neuen Schwander and assistants.

3.—MODERN FRENCH WRITERS. Three hours, both semesters.

Stanton, Mahieu.

4.—COMPOSITION. Two hours, both semesters.

Stanton, Mahieu.

The following courses are arranged for regular students of voice, and are required in the Junior year:

1.—ELEMENTARY FRENCH (Fine Arts). The elements of French grammar, with emphasis on correct pronunciation and diction. First semester, M. W. F., at 2:30. Three hours. Cate.

2.—ELEMENTARY FRENCH (Fine Arts). The elements of French grammar, continued. Reading of easy French prose and simple lyric poems. Second semester, M. W. F., at 2:30. Three hours. Cate.

GERMAN.

Professors: THURNAU, ENGEL.

1.—ELEMENTARY GERMAN. Five hours credit, both semesters.

Engel.

2.—GERMAN READING AND GRAMMAR. Five hours credit, both semesters.

Kruse.

3.—INTERMEDIATE GERMAN. Five hours credit, both semesters.

Thurnau.

4.—GERMAN CLASSICS. Three hour credit, both semesters.

Engle, Kruse, Thurnau.

The following courses are arranged for regular students of voice, and are required in the Sophomore year:

1.—GERMAN GRAMMAR (Fine Arts). Vos's Essentials of German, with emphasis on correct pronunciation and sentence melody. First semester, M. W. F., at 8:30. (Three hours.) Thurnau.

2.—GERMAN READING (Fine Arts). Vos's Essentials of German completed. Reading of easy German prose, and selected lyric poems. Second semester, M. W. F., at 8:30. (Three hours.) Kruse.

GREEK.

Professor: WILCOX.

Associate Professor: BRANDT.

88.—GREEK ARCHITECTURE. Two hours, first semester. Brandt.

89.—GREEK SCULPTURE AND PAINTING. Three hours credit. Second semester. Brandt.

HISTORY OF MUSIC.

Professor: SKILTON.

Textbook, "The Study of the History of Music," by Edward Dickinson, published by Scribners. Lectures and recitations, with musical illustrations by instructors, members of the class, and on the Victrola, making the students familiar with the actual music of the period studied. Outside reading and preparation of a paper is required for each recitation, and a notebook must be handed in at the end of each semester.

1.—HISTORY OF MUSIC. Primitive music; savage and oriental music; music of the ancient cultured nations; music of the early Christian church; the Roman Catholic liturgy and chant; popular music in the Middle Ages; the beginnings of polyphonic music; age of the Netherlanders; choral music in the sixteenth century; early German Protestant music; Protestant church music in England; beginning of the opera and the monodic style; growth of instrumental music; organ, violin and piano. First semester, Tu. Th., at 9:30. (Two hours.) Skilton.

2.—HISTORY OF MUSIC. Italian opera, serious and comic, in seventeenth and eighteenth centuries; opera in France and England in seventeenth century; Italian style in German church music; Bach and Handel; opera comique in the eighteenth century; Gluck, Haydn, and Mozart. Second semester, Tu. Th., at 9:30. (Two hours.) Skilton.

3.—HISTORY OF MUSIC. Beethoven; Weber and the romantic opera; Schubert and the German song; piano playing to 1830; Schumann, Mendelssohn and Chopin; program music; Berlioz and Liszt; Italian and French opera in first half of the nineteenth century. First semester, Tu. Th., at 11:30. (Two hours.)

4.—HISTORY OF MUSIC. Wagner and the opera; modern music of Germany and Austria; modern music of France and Italy; modern Slavonic and Scandinavian music; modern music in England and America; the ultra-modern movement. Second semester, Tu. Th., at 11:30. Skilton.

ITALIAN.

Professor: GALLOO.

Assistant Professor: STANTON.

Instructor: CRAM.

Required of all Freshmen in the vocal course leading to a degree.

1.—ELEMENTARY ITALIAN I. Three hours credit, first semester. M. W. F., at 11:30. Cram.

2.—ELEMENTARY ITALIAN II. Continuation of course 1. Three hours credit, second semester, M. W. F., at 11:30. Cram.

MUSICAL THEORY.

Professors: SKILTON, KENDRIE.

Courses 1 to 6, 11, 12, and 15 are required of all students in the courses leading to a degree. Students who do not take courses 7 and 8 in the Junior year must take courses 13 and 14 in the Senior year.

Courses 1 to 4, 11, and 12 are required of all students in the two-year public-school music course.

Courses 9 and 10 may be taken only at the invitation of the instructor.

1.—HARMONY. The study of overtones, scales, intervals, triads and seventh chords and their inversions. The practical work consists of harmonizing melodies in soprano or bass and playing chord progressions at the piano. Freshman, first semester, M. W. F., at 9:30, 1:30 and 2:30; second semester, M. W. F., at 9:30. (Three hours.)

Kendrie, Sweeney.

2.—HARMONY. The study of close and open harmony, dominant ninth and diminished seventh chords, modulations. Practical work continued. Freshman, second semester, M. W. F., at 9:30, 1:30, and 2:30. (Three hours.)

Kendrie, Sweeney.

3.—HARMONY. The study of modulation, irregular resolutions, altered chords, suspensions, passing tones, organ point, harmonization of florid melodies. Practical work continued. Sophomore, first semester, Tu. Th., at 2:30. (Two hours.)

Skilton.

4.—HARMONY. Suspensions, passing tones, appoggiaturas, neighboring tones, organ point, harmonization of florid melodies, analysis. Practical work continued. Sophomore, second semester, Tu. Th., at 2:30. (Two hours.)

Skilton.

5.—COUNTERPOINT. The different orders or single counterpoint in two, three and four parts. Junior, first semester, M. W., at 10:30. (Two hours.)

Skilton.

6.—COUNTERPOINT. Double and triple counterpoint, counterpoint in the twelfth and fifteenth and in more than four parts. Modern counterpoint. Junior, second semester, M. W., at 10:30. (Two hours.)

Skilton.

7.—MUSICAL COMPOSITION. The theme and variation, dance and song forms. Analysis of classical models, and practical work. Junior, first semester, W., at 11:30. (One hour.)

Skilton.

8.—MUSICAL COMPOSITION. The sonata and rondo forms; analysis of classical sonatas; original work. Junior, second semester, W., at 11:30. (One hour.)

Skilton.

9.—MUSICAL COMPOSITION. Original work in modern forms. Open only to those who show talent for composition. Senior, first semester, by appointment. (One hour.)

Skilton.

10.—MUSICAL COMPOSITION. Continuation of course 9. Open only to those who show talent for composition. Senior, second semester, by appointment. (One hour.)

Skilton.

11.—INSTRUMENTATION. The nature and treatment of the different instruments of the orchestra. The overture, symphony, cantata. Practical work for the University Orchestra. Senior, first semester, Tu., at 10:30. (One hour.)

Nevin.

12.—INSTRUMENTATION. Continuation of course 11. Senior, second semester, Tu., at 10:30. (One hour.)

Nevin.

13.—FORM AND ANALYSIS. The hymn tune and short song form; motive, phrase and section; the song form with trio; dance forms as distinguished by rhythm and style; illustrations from Bach's Preludes, Inventions and Suites, and from short piano pieces and songs of modern composers. Senior, first semester, F., at 10:30. (One hour.)

Skilton.

14.—FORM AND ANALYSIS. The sonata and symphony; form of each movement; the overture, chamber music and fugue; the motet, cantata mass, passion, and oratorio; examination of at least one classical example of each. Senior, second semester, F., at 10:30. (One hour.)

Skilton.

15.—CANON AND FUGUE. The various forms of canon and their use in composition. The fugue and original work. Senior, first semester, W., at 2:30. (One hour.)

Skilton.

ORGAN.

Professor: SKILTON.
Instructor: SODERLUND.

1.—MANUAL AND PEDAL STUDIES. Merkel or Archer. Pedal scales and arpeggios; the principles of hymn playing. Sophomore, first semester, one hour a week, by appointment.

2.—MANUAL AND PEDAL STUDIES. Buck's studies in Pedal Phrasing; Schmidt's Organ Etudes; Bach's Little Preludes and Fugues, Flagler's The Organist's Treasury, and other selections. Sophomore, second semester, one hour, by appointment.

3.—SERVICE AND SOLO PLAYING. Buck's Choir Accompaniment. Various styles of hymn playing; accompaniment of solo and chorus. Schneider's Pedal Studies, easier preludes and fugues of Bach and Mendelssohn. Modern pieces by Batiste, Lemmens, Guilmant, and others. Junior, first semester, two hours, by appointment.

4.—SERVICE AND SOLO PLAYING. Arrangement of piano accompaniment for organ. Practice in accompanying singers. The easier sonatas of Mendelssohn, Merkel, Guilmant, and others. Junior, second semester, two hours, by appointment.

5.—CHURCH AND CONCERT PLAYING. Practical work in playing the church service. The more difficult fugues and sonatas. Concert pieces by Widor, Guilmant, Saint-Saëns, Thiele, and others. Senior, first semester, two hours a week, by appointment.

6.—CHURCH AND CONCERT PLAYING. Extemporization and transposition. Program making. Preparation of a recital. Senior, second semester, two hours a week, by appointment.

7.—CHURCH MUSIC. The history of church music, examination of different schools and styles. Senior, first semester, one hour a week.

8 and 9.—ORGAN CONSTRUCTION. Examination of tracker, tubular pneumatic, and electric action in available organs. Practice in tuning. One hour a week, Junior year, by appointment.

PIANOFORTE.

Professor: PREYER.
Assistant Professors: GREISINGER, SWEENEY.
Instructors: MILLER, SODERLUND.

Courses 1 to 12, inclusive, are open only to students of the School of Fine Arts.

1 and 2.—PIANO. Hanon: Virtuoso Pianist. A limited number of studies from the following: Hoffman, Etudes for the Left Hand; Cramer-Buelow, Sixty Selected Etudes; Preyer, Twenty Etudes, op. 25 (Schirmer); Bach, two-part inventions (Litolff, No. 42), etc. Sonatas by Hayden, Mozart, Beethoven. Selections from classic and modern compositions. Freshman, throughout the year, twice a week, by appointment. Greisinger, Sweeney, Soderlund.

3 and 4.—PIANO. Pischna: Technical Exercises. Etudes, selected according to the needs of the pupil, from Jensen, op. 32; MacDowell, op. 39; Haberbier, Etudes Poesis, op. 53; Preyer, op. 30 and op. 45; Hollaender, intermezzi for left hand; Bach, three-part inventions. Concertos by Mozart, Hummel, etc. Selections from classic and modern compositions. Sophomore, throughout the year, twice a week, by appointment.

Greisinger, Sweeney, Soderlund, Miller.

5 and 6.—Phillip: Daily Exercises. Clementi's Gradus ad Parnasum; Etudes from Moscheles, op. 70; Seeling, Concert Etudes, op. 10; Chopin, Preludes; Bach, Well-tempered Clavichord (Reinecke, B. and H.); concertos by Beethoven, Mendelssohn, etc.; concert pieces by classic

and modern composers. Junior, throughout the year, private lessons, twice a week, by appointment. Preyer.

7 and 8.—Joseffy: School of Advanced Piano Playing. Phillipp, Etudes for the Left Hand; Etudes for Chopin, op. 10 and op. 25; Rubinstein, op. 23, etc. Sonatas and concertos by Beethoven, Weber, Grieg, etc. Concert pieces by modern composers. Senior, throughout the year, private lessons, twice a week, by appointment. Preyer.

9 to 12.—A course for the study of pianoforte methods, aiming to develop independence of the fingers, and acquire correct habits of practicing the scales, arpeggios, trills, octaves, chords, etc. Freshman and Sophomore, throughout the year. Wednesday, 3 to 4. Miller.

13 and 14.—TEACHING MATERIALS A study of teaching materials for piano. Each pupil is required to keep a notebook, teach one practice student and attend a one-hour class each week. Open to all students but Freshman, and to advanced special students. Twice a week, throughout the year, by appointment. Required of all candidates for the three-year teacher's certificate in piano. Greisinger.

PHYSICAL EDUCATION AND HEALTH.

Professors: NAISMITH (Head of Department), ALLEN.

Associate Professor: GOETZ.

Instructors: BOND, PRATT, COLE, STEGER.

Secretary: MRS. STRICKLER.

This department is in process of reorganization.

All Freshman students must take two hours of exercise and attend the hygiene lectures (course 20), one hour each week, at 4:30 o'clock.

All Sophomore students must take two hours of exercise each week.

HEALTH.

The University health service maintains two hospitals. One is a general hospital and dispensary which is open to all students for general treatment, consultation and advice. The other is used for communicable cases, where isolation is necessary.

All students are given a thorough physical examination on entrance, at which time inquiry is made as to previous illness and general physical history. Advice is given as to amount and kind of exercise, also diet and general personal hygiene, especially in cases where undernutrition exists or other metabolic disorders.

Where physical conditions contra-indicate regular gymnasium courses, special corrective work is prescribed. Students presenting physical defects such as spinal curvature, defective arches, bad posture, defective breathing, poor chest development, etc., are also placed in charge of this special instructor, who gives individual work directed toward the correction of particular conditions.

There is a large rest and silence room in the gymnasium, where students exhibiting symptoms of fag and exhaustion may rest instead of exercise. Definite hours of rest are prescribed and substituted for exercise when the welfare of the student so requires.

COURSES OF EXERCISE.

Advanced students may elect any of the forms of exercise in which they are particularly interested.

EXERCISE 1. First semester, M. W. F. Calisthenics, wands, dumbbells, pulley weights, elastic exercises, folk dances and gymnastic games.

EXERCISE 2. Second semester, M. W. F. Continuation of course 1. Prerequisite, course 1, or its equivalent.

EXERCISE 3. First semester, Tu. Th. Swedish gymnastics, folk dancing, esthetic and rhythmical exercises; Indian clubs. Prerequisite, course 2. Required of Sophomores.

EXERCISE 4. Second semester, Tu. Th. A continuation of course 3. Prerequisite, course 3. Required of Sophomores.

EXERCISE 8.—Esthetic Dancing. Both semesters.

1. Elementary Dancing. First semester, Tu. Th., at 4.
2. Elementary Dancing. Second semester, M. W. F., at 4.
Prerequisite, one year of physical exercise.
3. Advanced Dancing. First semester, M. W. F., at 4.
4. Advanced Dancing. Second semester, Tu. Th., at 4.
Prerequisite, dancing 1 and 2, or its equivalent.

SWIMMING. The swimming pool is used by the women students on Monday and Thursday from 10:30 to 12:30; and from 2:30 to 5:30. All students are advised to learn to swim.

BASKETBALL. Regular practice is held daily, at 3, but organized teams may play at any time when the floor is unoccupied.

TENNIS. There are five courts on South Field reserved for the women students.

FIELD HOCKEY. Class and other teams may be organized, and have regular hours for practice on South Field. Hockey sticks and balls are provided by the University.

Other games may be played whenever the field is unoccupied and when groups of students select a time.

PHYSICS.

Assistant Professor: STIMPSON.

65.—ELEMENTARY ACOUSTICS. A course of about twenty lectures, with demonstrations, upon the scientific basis of harmony. Required of Junior and Senior students of the School of Fine Arts. Third half-term, M. W., at 4:30. Given in alternate years. (Offered in 1920-'21.)
Stimpson.

PUBLIC-SCHOOL MUSIC.

Music Supervisors' Course.

Professor: DOWNING.
Instructor: HALL.

1.—TEACHING OF MUSIC IN ELEMENTARY SCHOOLS. Methods and materials for grades 1, 2, 3, and 4. Logical development in teaching; rote song; songs of the seasons; staff notation; voice training; scales without technical explanation; scales with technical explanation; use of paper keyboards; ear training; rhythm tapping; reading at sight; games and plays. First semester, M. W. F., at 8:30 and 1:30. (Three hours.)
Hall.

2.—TEACHING OF MUSIC IN ELEMENTARY SCHOOLS. Methods and materials for grades 5, 6, 7, and 8. Two- and three-part songs; vocal development; ear training; sight singing; dictation; music appreciation; games and plays. Second semester, M. W. F., at 8:30 and 1:30. (Three hours.)
Hall.

General Pedagogical Problems.—Advantage of normal training; relation of supervisor to grade teacher, principal, and superintendent; types of children. Measurements of musical talent. Examination of books and materials for all grades.

3.—TEACHING OF MUSIC IN JUNIOR AND SENIOR HIGH-SCHOOLS. Methods and materials for the Junior high school and the first year of the Senior high school. Three- and four-part songs; treatment of unchanged and changed voices; sight singing; ear training; melodic and rhythmic dictation; simple modulations; the bass voice. First semester, Tu. Th., at 1:30. (Two hours.)
Downing.

4.—TEACHING OF MUSIC IN THE HIGH SCHOOL. High-school music from artistic and scientific viewpoints; choral singing (including sight

singing); girls' and boys' glee clubs; high-school orchestra; classes in history and theory (harmony, ear training, analysis). Outlines for courses of study in logical development of teaching the simpler forms of musical theory, suitable for use in high schools. Second semester, Tu. Th., at 1:30. (Two hours.)
Downing.

General Pedagogical Problems.—The city music supervisor as high-school teacher of music; the relation of the music teacher to other teachers in the high school; value of courses in psychology and education to those preparing to teach music; planning work for high schools where no definite courses have been followed. Examination of books and materials.

1.—PRACTICE TEACHING. Actual teaching in all the grades of the city schools of Lawrence. Sophomore, first semester, by appointment. (One hour.)
Hall.

2.—PRACTICE TEACHING. A continuation of practice teaching 1; also observation in the Junior and Senior high schools. Sophomore, second semester, by appointment. (One hour.)
Hall.

1 and 2.—CONDUCTING. A course in the proper methods to be used in conducting choruses and orchestras, with actual experience in the work. Throughout the year, Th., at 10:30. (One hour.)
Kendrie.

COMMUNITY MUSIC. Methods and materials used in organizing and conducting all phases of community music; relation to community life; actual experience in conducting. Both semesters. M., at 11:30. (One hour.)
Nevin.

SUPERVISOR'S VIOLIN. In class. Proper methods of bowing and fingering; practical experience in the use of the violin as an orchestral instrument; materials used by the high-school orchestra. Both semesters, W., at 11:30. (One hour.)
Kendrie.

VIOLIN.

Professor: KENDRIE.

1 and 2.—KREUTZER'S FORTY STUDIES. Scale Studies by Alard or Schradieck. Selections from Sevcik's Four Thousand Bow Studies. Solos by Singelee, Alard, Leonard, Bohm, Daube, and others. Duets by Mazas and Dancla. Concertos by Rode and De Beriot.

3 and 4.—KREUTZER'S FORTY STUDIES. Fiorillo's Thirty-six Studies. Scale Studies by Alard or Schradieck. Selections from Sevcik's Four Thousand Bow Studies. Sonatas, concertos, selections from compositions of Bach, Handel, Beethoven, De Beriot, Ernst, Vieuxtemps, Viotti, Wieniawski, Brahms, Leonard, Sarasate, Hubay, and Kreisler. Ensemble playing.

5 and 6.—KREUTZER'S FORTY STUDIES. Fiorillo's Thirty-six Studies. Selections from Sevcik's Technic Studies. Sonatas of Bach, Handel, Beethoven, Rubinstein, Franck, Grieg, and Sjogren. Selections for compositions of Wieniawski, Leonard, Hubay, Sarasate, Bazzini, Saint-Saëns, Vieuxtemps, Zarzycki, Natchez, Shubert, Schumann, and Chopin. Violin duets. Standard concertos. Ensemble playing.

7 and 8.—FIORILLO'S THIRTY-SIX STUDIES. Rode's Twenty-four Studies. Selections from Sevcik's Technic Studies. Sonatas for violin alone by Bach. Compositions of Handel, Tartini, Ernst, Paganini, Wieniawski, Vieuxtemps, and others. Standard concertos. Selections from compositions of American composers, including study of trios, quartets, and orchestral compositions. Other ensemble work.

RECITALS.

Recitals 1 to 8, required of all music students in the degree or four-year certificate courses.

Recitals 1 to 4, required of all public school music students.

RECITALS 1 to 8. Attendance at all private and public student recitals, faculty concerts, University Concert Course concerts, and such other concerts as the Dean may announce. Student must turn in his notebook at the end of each semester. One hour credit each semester.

VOCAL CULTURE.

Professors: BUTLER, DOWNING.
Associate Professor: WELLINGTON.
Instructor: REYNOLDS.

1 and 2.—TONE PLACING AND BREATH CONTROL. Dictation exercises for the special needs of the individual voice. Sustained tones. Breath control and the true legato. The study of conditions necessary for the poising of the voice. The Italian vowels. Technical exercises selected from Marchesi, Lamperti, Sieber, Abt, Panofka, Garcia, and Shakspeare. Simple English and Italian songs. Freshman, twice a week throughout the year, by appointment.

Butler, Downing, Reynolds.

3 and 4.—VOICE EXTENSION. Development of tone. Breath control. Exercises for flexibility from Lamperti, Nava, Concone, Vannini, Bordogni, Sieber, and Shakspeare. English and Italian songs. German lieder. Church solos. Sophomore, twice a week throughout the year, by appointment.

Butler, Downing, Wellington, Reynolds.

5 and 6.—STUDY OF TONE COLOR. Exercises for flexibility, continued. Embellishments. Exercises from Concone, Panofka, Marchesi, Garcia, Panseron, and Rossini. German lieder, English oratorio, and church solos. Junior, twice a week throughout the year, by appointment.

Butler, Wellington, Downing.

7 and 8.—STYLE AND INTERPRETATION. A comparative study. Exercises for bravura singing from Marchesi. Flexibility and finishing exercises from the masterpieces of vocalization. Stage deportment. Selections from opera and oratorio. Modern Italian, German, and French song literature. Senior, twice a week throughout the year, by appointment.

Butler, Wellington, Downing.

9.—VOCAL SEMINAR. An intensive study of the classic Italian song literature: Bononcini, Cavalli, Caldara, Pergolese, Paisiello, Monteverde, Scarlatti, Carissimi, Lotti, Gluck, Handel, etc. The German romantic school; Schubert, Schumann and Franz; with especial attention to correct diction and interpretation. Open to Juniors, Seniors and advanced special students. First semester. Once a week, by appointment.

Butler.

10.—VOCAL SEMINAR. A continuation of 9. Modern French, German and Russian song literature. Representative American song composers; Chadwick, Beach, Foote, Rogers, Carpenter, Nevin, Coombs, Arthur Nevin, Homer, Gilbert, Hadley, etc. Second semester. Once a week, by appointment.

Butler.

SECTION VI.

School of Law.

(275)

FACULTY.

FRANK STRONG,¹ Ph. D., LL. D., President.

JAMES W. GREEN,² A. M., Dean and Professor of Law.

WILLIAM L. BURDICK, Ph. D., LL. B., Professor of Law.

WILLIAM E. HIGGINS,³ B. S., LL. B., Professor of Law.

HENRY W. HUMBLE, A. M., J. D., Professor of Law.

ALBERT J. HARNO, B. S., LL. B., Professor of Law.

JACOB C. RUPPENTHAL,⁴ LL. B., Professor of Law.

RAYMOND F. RICE, A. B., LL. B., Associate Professor of Law.

Lecturers for 1919-1920.

HON. JOHN C. POLLOCK, Judge of the United States District Court.

HON. WILLIAM A. JOHNSTON, Chief Justice of Kansas.

HON. SILAS PORTER, Justice of the Supreme Court of Kansas.

HON. JUDSON S. WEST, Justice of the Supreme Court of Kansas.

HON. JOHN MARSHALL, Justice of the Supreme Court of Kansas.

HON. JOHN S. DAWSON, Justice of the Supreme Court of Kansas.

HON. HENRY F. MASON, Justice of the Supreme Court of Kansas.

HON. ROUSSEAU A. BURCH, Justice of the Supreme Court of Kansas.

HON. WM. EASTON HUTCHISON, Secretary State Board of Bar Examiners.

HON. GEORGE H. WARK, Judge of the Kansas Industrial Court.

1. Professor of Law, elect.

2. Died November 4, 1919.

3. Absent on leave.

4. For current year.

THE SCHOOL OF LAW.

It is the aim and purpose of the School of Law to give its students a thorough and scientific acquaintance with the general principles of English and American Law, and to furnish a course of legal instruction that shall fit them to practice at the bar of any state of the Union; also to give those who do not expect to become practicing attorneys, but who desire to obtain a knowledge of law as a valuable preparation for a business career, such instruction as may be best suited to their needs.

DEGREE GRANTED.

The course of study of the School of Law occupies three years, and leads to the degree of Bachelor of Laws (LL. B.).

CERTIFICATE OF ATTENDANCE.

If a student does not graduate, he may, on application to the Registrar, receive an official certificate of his attendance and of the work accomplished by him in the School.

ADMISSION TO THE BAR IN KANSAS.

No diploma of graduation from a law school will admit one to the bar in the state of Kansas. Applicants for admission are required to pass an examination conducted by the State Board of Examiners, appointed by the supreme court. The statute (G. S., 1915, sec. 478), provides that any citizen of the United States who is a graduate of the School of Law of the University of Kansas, or some other law school of equal requirements and reputation, or who has read law for three years in the office of a regularly practicing attorney, may be admitted to practice upon satisfying the supreme court that he possesses the requisite ability and learning and that he is of good moral character.

Under this statute, the supreme court has adopted certain rules (see Rules of the Supreme Court of Kansas, Nos. 20-25, 100 Kan. xx), providing for the examination of applicants for admission to the bar. The board of examiners meets at Topeka on the third Monday in January and June. Applications for examination and proof of qualifications must be filed with the secretary of the board at least three weeks before the examination. Printed forms of application may be obtained from the clerk of the supreme court, Topeka, Kan.

All applicants must have a general education substantially equivalent to that required in a standard four-year course of an accredited high school.

In addition, candidates for admission are required to pass a written examination covering their legal qualifications upon subjects prescribed by the State Board of Examiners. All subjects included in these professional requirements are within the course of study of the University School of Law.

WORK IN PREPARATION FOR LAW.

All persons proposing to enter upon the study of law are earnestly recommended to take either a regular or a special course in the College. A good fundamental education is necessary to a successful study of law. Especially is it necessary now that the practitioner must come into

competition with men who have had a thorough university training before they entered upon the study of law.

The College offers special work in subjects of great value as preparatory to the study of law: English and American constitutional and political history, constitutional law, political science, economics, sociology, history of international and common law, rhetoric and English composition, and debating. These courses are especially recommended in preparation for law.

REQUIREMENTS FOR ADMISSION.

Beginning with the academic year of 1921-'22, that is, in September, 1921, sixty hours credit in the College of Liberal Arts and Sciences of the University of Kansas, or its equivalent in some other university or approved college, in addition to graduation from a four-year high school, will be required for entrance to the School of Law. Until that time, the present requirement of thirty hours of college credits, in addition to graduation from a four-year high school, will be in force.

This credit may be proved by proper certificate of the authorities of the university or college where the work was done, or it may be obtained by examination upon application to the University of Kansas.

SPECIAL STUDENTS.

Opportunity is given in the School of Law for the admission of persons of mature years who desire to pursue special work without following any prescribed course or becoming candidates for a degree.

The admission of such special students is under the control of the Dean of the School, whose certificate of acceptance must be presented to the Registrar before registration. Applicants for standing as special students must present satisfactory evidence of proper preparation for the studies desired, and must also meet other requirements as fixed by the Faculty.

Special students are subject to the same regulations as regular students with regard to the quality of work performed and attendance at recitations and examinations.

ADMISSION TO ADVANCED STANDING. Credit for work of collegiate standing is granted only on recommendation of the Advanced Standing Committee. For regulations governing the granting of such credit, see "Admission to Advanced Standing," Section I, page 50.

REGISTRATION.

All candidates for admission to the Law School, and all students intending to pursue studies therein during the ensuing year, must present themselves for registration at the University on September 13, 14, 15, 1920. *Registration at a later date will be permitted only on the payment of a fee of one dollar.*

ENROLLMENT.

After registration has been completed with the Registrar, and after fees have been paid, students should apply to the Dean for enrollment in their classes. Enrollment the first semester occurs September 14 and 15, 1920, and on the first day of the second semester. *Enrollment at a later date will be permitted only on the payment of a fee of one dollar.*

FEES AND EXPENSES.

Matriculation fee, for residents of the state.....	\$10.00
for nonresidents	15.00
Incidental fee, for residents of the state.....	35.00
for nonresidents	45.00
Diploma fee, at graduation	10.00

Information concerning the location of rooming and boarding places may be had at the office of the Registrar, or from the Secretary of the University Y. M. C. A.

The average price of board, rooms, light, and fuel may be placed at from \$7 to \$20 a week. Day board in private families and at city restaurants may be obtained for \$7 a week. Day board in clubs varies from \$5.50 to \$7 a week. Furnished rooms, usually occupied by two students, range from \$12 to \$25 a month. Unfurnished rooms rent for \$3 to \$6 a month. Students who can supply their own furniture and buy and prepare provisions for the table themselves can lessen expenses materially.

By the terms of the will of the late Dean James Woods Green, the May Stephens Green student loan fund of \$5,000 is available for loans to students in the School of Law, on terms set forth in the will.

STUDENT HONORS AND ACTIVITIES.

HONORS. By resolution, the State Bar Association of Kansas, as a recognition of the School of Law and for the purpose of encouraging its students to work along the line of legal literature, assigns a place on the literary program of the annual meeting to that student of the Senior class who prepares the best paper on some legal topic assigned by the Law Faculty. The merits of the papers submitted are passed upon by a committee appointed for the purpose.

See, also, "Prizes and Aids," Section I, p. 55.

COOLEY CLUB. Meetings of the club occur once each week. Any student of the School of Law is eligible, but the membership is confined at present mainly to the members of the Junior and Middle classes. Legal questions are debated, and to this is added the work of the ordinary literary debating society.

KENT CLUB. The members of the Kent Club are, in the main, members of the Senior class, although any student in the School of Law is eligible to membership. The work consists of the discussion of legal, economic, and historical questions, and the consideration of legal literature. Debating is a prominent feature of the work of the club.

DEBATING. Interstate debates are held each year with Oklahoma, Missouri, and Colorado state universities. Members of the Law School are admitted to the preliminary contest held for the purpose of choosing representatives on each of these debates. Those chosen receive practical instruction in public speaking and debating from a committee of the general Faculty of the University. Law students are also eligible to membership in the general literary clubs of the University.

EQUIPMENT.

GREEN HALL. A building for the School of Law was completed during the summer of 1905, at a cost of \$65,000, and is one of the most complete and best-equipped law buildings in the West. It has three floors, devoted to recitation rooms, offices, library, and rooms for the Law School clubs. The library contains space for about 20,000 volumes, and private study rooms for students and Faculty open into the reading room of the library. A large room is set aside for a practice court, and the best facilities possible are available for students of the law.

LIBRARIES. The law library, comprising over 10,000 volumes, is for the exclusive use of the students of the School of Law. This library has an excellent equipment of the best law textbooks, and new texts are being added constantly. It has also reports of the courts of last resort, both state and federal, as well as Lawyers' Reports Annotated, American Decisions, American Reports, the complete *Reporter* system, and the full reprints of the English cases. Additions are annually made to the library

equipment. In addition to the volumes devoted exclusively to law, the University library of 124,000 volumes is at the disposal of the law students. They thus have at hand the largest and best-selected scholarly library in the Southwest. The city library, housed in the Carnegie building, is also open to students of the School of Law for books of fiction and general literature.

STATE LIBRARY. The state library at Topeka, which is largely a law library, is easily accessible to students upon necessary occasions. Such works as may be found usually in large state libraries are therefore at the service of the members of the Law School during the year.

COLLEGE AND SCHOOL OF LAW IN SIX YEARS.

A regular course in the College is strongly recommended. During his Senior year of the College a student is permitted to elect one half-year's work from the course in the School of Law, for which he will receive credit in his college course. By this arrangement, the student, by extra work in the summer, may finish both the College and the School of Law in six years.

COURSES OF LAW IN THE SUMMER SESSION.

A Summer Session of the Law School is held each year, beginning immediately upon the close of the regular session. The class periods during the Summer Session are one and one-half hours, thus giving the same amount of class instruction as is given to the topics taught in the regular sessions. The courses offered in the Summer Session of 1920 are: Criminal Law, Agency, Torts, Insurance, Partnership, and Wills. Any person taking work in a Summer Session may select any two of the subjects given.

For further details, see Summer Session section of Catalog, under "Law"; and "Description of Courses," in this section.

SYSTEM OF INSTRUCTION.

It is believed to be proved by experience that, to be thoroughly efficient, instructional training in law courses must be given by resident teachers who give their whole time to instruction. The work of the School of Law is under the direction of five resident instructors, supplemented by lectures on special topics by eminent judges and active members of the bar.

METHOD OF TEACHING.

In accord with the practice of nearly all the best American law schools, the method of teaching is based upon the study of the reported cases, including the decisions of both the Federal and the various state courts. In this way, the student studies the authorities at first hand, becomes familiar with the methods of judicial reasoning, and from the beginning of his course enters upon the plan of study that the practicing lawyer must pursue throughout his professional life. This method involves the facts of the reported case, the questions of law raised upon such facts, and the decision thereon, including the reasons or principles that underlie the decision. The attention of the student is directed to the necessity of distinguishing decisions based upon different facts and different principles. Where the decisions are in conflict, the reasons are observed and the weight of authority considered.

PRACTICE COURTS.

There are three practice courts in the School of Law, all of them under the immediate supervision of the member of the Faculty who devotes the major part of his time to this work. The sessions are held in the court

room, which has been fitted with all the furniture to be found in court rooms in actual practice. Ample accommodations are furnished for judge, jury, and practitioners.

The First-year Practice Court.

In the first year, preliminary instruction is first given in the analysis of opinions, and in the preparation of cases for argument. Following this preliminary instruction, court is held under the direction of the member of the Faculty in charge. The places of attorneys, clerk, and other court officers are filled in rotation by members of the class. Cases involving statements of facts are assigned. Written briefs are required to be presented, served upon the opposing attorneys, and submitted to a court composed of two members of the class and the members of the Faculty. Written opinions containing full discussion of the legal questions presented are required to be handed down by the student justices.

The Second-year Practice Court.

The aim of the course of the second year is to instruct in the preparation of cases before and after they are filed in court. To this end, statements of fact are given to the members of the class, in accordance with which trial briefs of the law and of facts are made, and pleadings under the common-law, equity and code systems of civil procedure are drawn. Each member of the class receives from the instructor in charge criticism of the work done. The code practice of the court follows closely the practice in the district courts of Kansas. Besides this work, a course of lectures is given on instructions to juries and findings of fact. Members of the class are required to draw journal entries, instructions, and findings, under direction of the instructor in charge of the course.

The Third-year Practice Court.

The work of the third year is a continuation of the work of the preceding two years. The student is taught how to begin and prosecute a case in court. The former difficulty of originating facts in practice courts has been overcome, and all the testimony of complicated cases is placed in the hands of witnesses, who are interviewed by the attorneys assigned. The cases are then begun, prosecuted and determined as in actual practice. Juries are drawn and impaneled, the evidence produced, instructions given, verdicts and judgments rendered as in the justice of the peace courts and in the district courts of Kansas. Following this, appeals are prosecuted in due course to the supreme court, where briefs are filed and arguments made as in the supreme court of Kansas.

Only four attorneys are assigned to each case, and there are enough cases for all members of the class to act as trial attorneys and as attorney in the appellate court. Every member of the Senior class is thus given an opportunity to conduct a case as in actual practice.

Instruction is also given in legal ethics and in office practice.

For members of the courts a series of lectures on practical topics is arranged for the second term of each year.

CURRICULUM.

SCHEDULE OF COURSES.

Key: (B) Professor Burdick. (Ha) Professor Harno. (Hu) Professor Humble.
(R) Professor Rice. (S) Professor Strong.

FIRST YEAR.

FIRST QUARTER.			SECOND QUARTER.		
	<i>Time.</i>	<i>Hrs.</i>		<i>Time.</i>	<i>Hrs.</i>
Torts I (Hu).....	8:30	5	Torts II (Ha).....	8:30	5
Contracts (S).....	9:30	5	Contracts (S).....	9:30	5
Criminal Law (B).....	10:30	5	Criminal Law (B).....	10:30	5
Court, F. (R).....	1:30	—	Court, F. (R).....	1:30	—
THIRD QUARTER.			FOURTH QUARTER.		
Damages (Hu).....	8:30	5	Agency (Hu).....	8:30	5
Personal Property (Ha).....	9:30	5	Equity I (S).....	9:30	5
Sales (B).....	10:30	5	Real Property I (B).....	10:30	5
Court, F. (R).....	1:30	—	Court, F. (R).....	1:30	—

SECOND YEAR.

FIRST QUARTER.			SECOND QUARTER.		
	<i>Time.</i>	<i>Hrs.</i>		<i>Time.</i>	<i>Hrs.</i>
Common Law Pleading (R)...	8:30	5	Quasi Contracts (Hu).....	8:30	5
Wills (Ha).....	9:30	5	Insurance (Hu).....	10:30	5
Equity II (S).....	11:30	5	Equity Pleading (R).....	11:30	5
Court, M. W. (R).....	1:30	—	Court, M. W. (R).....	1:30	—
THIRD QUARTER.			FOURTH QUARTER.		
Domestic Relations (B).....	9:30	5	Real Property II (B).....	9:30	5
Evidence (Ha).....	10:30	5	Bills and Notes (Hu).....	10:30	5
Code Pleading (R).....	11:30	5	Evidence (Ha).....	11:30	5
Court, M. W. (R).....	1:30	—	Court, M. W. (R).....	1:30	5

THIRD YEAR.

FIRST QUARTER.			SECOND QUARTER.		
	<i>Time.</i>	<i>Hrs.</i>		<i>Time.</i>	<i>Hrs.</i>
Real Property III (B).....	9:30	4	Real Property IV (B).....	9:30	4
Private Corporations (Ha)....	10:30	5	Municipal Corporations (Ha)..	10:30	5
Partnership (Hu).....	11:30	5	Pub. Utilities and Carriers (S),	11:30	5
Roman Law (B).....	9:30	1	Roman Law (B).....	9:30	1
Court, Tu. Th. (R).....	1:30	—	Court, Tu. Th. (R).....	1:30	—
THIRD QUARTER.			FOURTH QUARTER.		
Conflict of Laws (S).....	9:30	5	Provisional and Ex. Rem. (R),	9:30	5
Trusts and Bankruptcy (Hu),	10:30	5	Suretyship (Ha).....	10:30	5
Constitutional Law I (S).....	11:30	5	Constitutional Law II (S)....	11:30	5
Court, Tu. Th. (R).....	1:30	—	Court, Tu. Th. (R).....	1:30	—

DESCRIPTION OF COURSES.

FIRST-YEAR COURSES.

1.—TORTS I. Professor Humble. Foundations of legal liability. Liability based upon act; liability based on proximate causation; liability irrespective of proximate causation; permitted acts. Beale's Cases on Legal Liability. First semester, first half, daily, at 8:30.

2.—CONTRACTS. Professor Strong. The formation of contracts; offer and acceptance; form and consideration; capacity of parties; reality of consent; legality of objects; operation of contracts; limits of contractual obligations; assignment of contracts; discharge of contracts, by agreement, by performance, by breach, by operation of law. Corbin's Cases, or Benjamin and Messing's Cases. First semester, daily, at 9:30.

3.—CRIMINAL LAW. Professor Burdick. Common-law and statutory offenses; parties in crime; classification and elements of the specific offenses; criminal procedure; jurisdiction, arrest, extradition, examination and bail, indictment, trial, evidence, proceedings after verdict, error, appeal. Selected Cases, and Kansas Statutes. First semester, daily at 10:30.

4.—TORTS II. Professor Harno. Trespass to the person and to property; negligent injuries to the person and to property; contributory negligence; injuries by animals; dangerous use of land; violation of statutory duties; deceit; malicious prosecution; defamation; interference with privacy; interference with social and business relations. Ames' and Smith's Cases on Torts (Pound's ed.) (part). First semester, second half, daily, at 8:30.

5.—PERSONAL PROPERTY. Professor Harno. Distinctions between real and personal property; legal conceptions: rights, privileges, powers and immunities *in rem* and *in personam*; gifts; bailments; liens; pledges; fixtures; emblements. Ames' and Smith's Cases on Torts (part); Bigelow's Cases on Personal Property. Second semester, first half, daily, at 9:30.

6.—SALES. Professor Burdick. Sales distinguished from kindred contracts; formation of the contract; effects of the contract; avoidance of the contract; performance of the contract; rights of unpaid seller against the goods, including lien and stoppage *in transitu*; remedies upon breach of the contract. Burdick's Cases. Second semester, first half, daily, at 10:30.

7.—DAMAGES. Professor Humble. *Damnum absque injuria*; nominal damages; liquidation of damages; aggravation and mitigation; exemplary damages; compensatory damages; nonpecuniary losses; damages in specific actions. Mechem and Gilbert's Cases. Second semester, first half, daily, at 8:30.

8.—REAL PROPERTY I. Professor Burdick. Introduction to real property; nature of real property and tenure thereof; feudal land law; seisin; estates; law of landlord and tenant. Burdick's Cases. Second semester, second half, daily, at 10:30.

9.—AGENCY. Professor Humble. Creation and termination of relation; evidence of appointment; ratification; construction of authorizations; execution of authority; right, duties, and liabilities of principal, agent, and third party *inter se*; particular classes of agents. Wambaugh's Cases on Agency. Second semester, second half, daily, at 8:30.

10.—EQUITY I. Professor Strong. Nature of equity jurisdiction; relation of common law and equity; equitable interests, remedies, and principles. Boke's Cases. Second semester, second half, daily, at 9:30.

11.—PRACTICE COURT. Professor Rice. For synopsis see *supra* in this catalog. First and second semester, F., at 1:30.

SECOND-YEAR COURSES.

12.—COMMON-LAW PLEADING. Professor Rice. The development of courts and of systems of pleading; an analytical and historical study of remedies at common law, including ancient modes of trial; forms of actions; parties to actions; order of proceeding; pleadings; production of issue; forms of traverse; demurrers; materiality, unity and certainty in pleading. Sunderland, Cases on Common Law Pleading. First semester, first half, daily, at 8:30.

13.—INSURANCE. Professor Humble. First semester, first half, daily, at 9. The theory of insurance with reference to fire, marine, accident, and life risks; the legal relation of the parties to the insurance contract examined historically and critically, with a view to developing the fundamental principles of the contract and the law merchant underlying it; interpretation and construction of the standard policies. Wambaugh's Cases. First semester, second half, daily, at 10:30.

14.—EQUITY II. Professor Strong. Specific performance of contracts; relief for and against third persons; incidents of the right to specific performance; bills for an account; relief against torts; bills of interpleader; bills *quia timet*; reformation and rescission for mistake. Boke's Cases. First semester, first half, daily, at 11:30.

15.—EQUITY PLEADING. Professor Rice. Origin and development of courts of equity; parties; bills; multifariousness; impertinence; nature and office of demurrers, pleas, answers and replications; decrees; petitions for rehearing and bills of review; changes introduced by new Federal Equity Rules. Cases on Equity Pleading, supplemented by the new Federal Equity Rules. First semester, second half, daily, at 11:30.

16.—BILLS AND NOTES. Professor Humble. The law merchant; delivery; form and requisites; maker's contract; acceptor's contract certified paper; drawer's contract; indorser's contract; presentment and demand; notice; protest; accommodation parties; right of holder; defenses; payment. Smith and Moore's Cases. Second semester, second half, daily at 10:30.

17.—QUASI-CONTRACTS. Professor Humble. Recovery upon a record; recovery upon a statutory, official, or customary duty; recovery upon the theory of unjust enrichment; relation of quasi-contract to equity. Woodruff's Cases (2d edition). First semester, second half, daily, at 8:30.

18.—WILLS AND ADMINISTRATION. Professor Harno. Testamentary capacity; kinds of wills; execution, revocation, republication and revival of wills; descent; administration; executors and administrators. Costigan's Cases on Wills, Descent and Administration. First semester, first half, daily, at 9:30.

19.—EVIDENCE. Professor Harno. Functions of the court and jury; burden of proof; presumptions; judicial notice; competency of witnesses; hearsay rule with exceptions; circumstantial evidence; preferred evidence; the "parol evidence" rule; examination and cross-examination. Hinton's Cases on Evidence. Second semester, daily, first half, at 10:30, second half at 11:30.

20.—DOMESTIC RELATIONS, OR FAMILY LAW. Professor Burdick. Contracts to marry; marriage; effect of marriage; statutory modifications of the common law; the wife's separate property; community property; separation and divorce. Parent and child; parental rights and duties;

filial duties. Guardian and ward: common-law, chancery, and statutory guardians; rights and duties of guardians; management and sale of the ward's property; guardian's accounts. Infants: general principles governing the contracts, torts, crimes, and general juristic capacity of minors. Master and servant; general principles. Woodruff's Cases. Second semester, first half, daily, at 9:30.

21.—CODE PLEADING. Professor Rice. Its relation to the common-law and equity systems; parties; splitting and joinder of causes of action; general rules of pleading; contents of complaint or petition, answer, and reply; nature and office of demurrers, motions, and bills of particulars; amendments; construction of pleadings. Sunderland's Cases on Code Pleading. Second semester, first half, daily, at 11:30.

22.—REAL PROPERTY II. Professor Burdick. Rights in the land of another; licenses; easements; profits; franchises and rents; future interests; remainders; reversions; future uses, executory devises. Rule in Shelley's case, and rule against perpetuities. Burdick's Cases. Second semester, second half, daily, at 9:30.

23.—PRACTICE COURT. Professor Rice. For synopsis, see *supra* in this catalog. First and second semester, M. W., at 1:30.

THIRD-YEAR COURSES.

24.—REAL PROPERTY III. Professor Burdick. Liens upon real property; mortgages; legal and equitable theory of a mortgage; informal and other equitable mortgages; assignment, payment, release, and foreclosure of mortgages; mechanics' liens; judgment liens notice; recording acts. Burdick's Cases. First semester, first half, M. T. W. Th., at 9:30.

25.—REAL PROPERTY IV. Professor Burdick. Title to real property; purchase and descent; adverse possession; deeds and their requisites; covenants for land; conveyancing, including execution of deeds and other instruments; the actual examination of abstracts of title, with the student's written opinion thereon; tax titles. Burdick's Cases; practice in drawing various documents of title. First semester, second half, M. Tu. W. Th., at 9:30.

26.—CONSTITUTIONAL LAW. Professor Strong. General principles governing the Federal and state constitutions; construction and interpretation; taxation; police power; eminent domain; civil rights; constitutional guaranties; respective powers of state and Federal governments in the regulation of commerce; laws impairing the obligation of contracts; *ex post facto* laws and retroactive laws. Hall's Cases. Second semester, daily, at 11:30.

27.—CONFLICT OF LAWS. Professor Strong. General rules; domicile; capacity; property; obligations; family law; inheritance; foreign administration. Lorenzen's Cases. Second semester, first half, daily, at 9:30.

28.—PRIVATE CORPORATIONS. Professor Harno. Functions and nature of corporations; promotion of corporations; responsibility for torts and crimes; powers; collateral attack upon the formation and powers of corporations; rights and duties of stockholders, officers and creditors; reorganization. Warren's Cases on Corporations. First semester, first half, daily, at 10:30.

29.—MUNICIPAL CORPORATIONS. Professor Harno. Nature, creation, alteration and dissolution of municipal corporations; their powers; accountability in tort and in contract; remedies of creditors; state control of municipal affairs. Macy's Cases on Municipal Corporations. First semester, second half, daily, at 10:30.

30.—SURETYSHIP. Professor Harno. Nature of suretyship contract; kinds of suretyship; statute of frauds; obligations of the surety; de-

fenses of the surety; surety's right of subrogation, indemnity, contribution, and exoneration; creditor's right to the surety's securities. Ames' Cases on Suretyship. Second semester, second half, daily, at 10:30.

31.—PUBLIC UTILITIES AND CARRIERS. Professor Strong. Duties of public service at common law and under statutes; statutory power to regulate public utilities; railroads; telegraph, telephone, light and water companies; carriers of goods; carriers of passengers; liability of carriers for loss or injury, for delay, for misdelivery; tickets and bills of lading; connecting carriers. Willis' Cases. First semester, second half, daily, at 11:30.

32.—TRUSTS. Professor Humble. Trusts distinguished from other legal relationships; language necessary to create; consideration; statute of frauds; subject matter of trusts; nature of *cestui's* interest; transfer of trust *res*; extinguishment; duties of trustee. Ames' Cases. (2d ed.) Second semester, first half, daily, at 10:30.

33.—PARTNERSHIP. Professor Humble. Formation of a partnership; partnership as to third persons; nature of a partnership; power of partners; rights and remedies of creditors; duties and liabilities of partners; dissolution of partnership; accounting and distribution; limited partnerships. Gilmore's Cases. First semester, first half, daily, at 11:30.

34.—BANKRUPTCY. Professor Humble. Jurisdiction; who may be bankrupt; petitioning creditors; acts of bankruptcy; property which passes to trustee; provable claims; duties of bankrupt and trustee; protection, exemptions, and discharge of bankrupt. Williston's Cases. Second semester, first half, daily, at 10:30.

35.—ROMAN LAW. Professor Burdick. History and sources; the Twelve Tables; codification; law of persons; law of things; law of actions; modern development of Roman law into the civil law of Europe and America. Institutes of Justinian, and Lectures, first semester, F., at 9:30.

36.—COURT AT CHAMBERS AND CLASS INSTRUCTION. Professor Rice. Supplementing Senior practice court; hearing of motions and demurrers at chambers; class instruction in extraordinary and provisional remedies, including habeas corpus; mandamus; quo warranto; arrest and bail in civil actions; replevin; attachment; garnishment; injunctions; receivers. Selected cases. Second semester, second half, daily, at 9:30.

37.—PRACTICE COURT. Professor Rice. First and second semester, Tu. Th., at 1:30. (For synopsis see *supra* in this announcement.)

COURSE FOR MINING ENGINEERING STUDENTS.

MINING LAW. Professor Humble. A course outlining the laws relating to the mining industries. Lectures and recitation, one hour per week, second semester, in alternate years. (Given in 1921-'22.) Costigan's Cases on Mining Law. Mining engineering students must take this course before graduating.

SECTION VII.

School of Pharmacy.

(287)

FACULTY.

- FRANK STRONG, Ph. D., President.
LUCIUS E. SAYRE, Ph. M., Dean, and Professor of Pharmacy and Materia Medica.
EDGAR H. S. BAILEY, Ph. D., Professor of Chemistry.
ERASMUS HAWORTH, Ph. D., Professor of Geology and Mineralogy.
WILLIAM C. STEVENS, M. S., Professor of Botany.
EUGENIE GALLOO, A. M., Professor of Romance Languages and Literatures.
L. D. HAVENHILL, Ph. M., Secretary, and Professor of Pharmacy and Pharmaceutical Chemistry.
FREDERICK E. KESTER, Ph. D., Professor of Physics.
HAMILTON P. CADY, Ph. D., Professor of Chemistry.
NOBLE P. SHERWOOD, Professor of Bacteriology.
OLE O. STOLAND, Ph. D., Professor of Physiology.
FRANK B. DAINS, Ph. D., Professor of Chemistry.
HENRY C. THURNAU, Professor of German.
GEORGE E. COGHILL, Ph. D., Professor of Anatomy.
HERMAN C. ALLEN, Ph. D., Professor of Chemistry.
C. FERDINAND NELSON, Ph. D., M. D., Professor of Physiological Chemistry.
FREDERICK N. RAYMOND, A. M., Associate Professor of English.
ULYSSES G. MITCHELL, Ph. D., Associate Professor of Mathematics.
GEORGE W. STRATTON, Ph. D., Associate Professor of Chemistry.
CHARLES M. STERLING, A. B., Assistant Professor of Pharmacognosy.
GEORGE N. WATSON, B. S., Assistant Professor of Pharmacy, in charge of Drug Laboratory.
WALTER S. LONG, A. M., Assistant Professor of Chemistry, in charge of Food Laboratory.
DANIEL H. SPENCER, Ph. C., Assistant Professor of Pharmacy.

ADMINISTRATIVE COMMITTEE.

- L. E. SAYRE, *Chairman*.
L. D. HAVENHILL. CHAS. M. STERLING.

THE SCHOOL OF PHARMACY.

PURPOSE AND ORGANIZATION.

The School of Pharmacy of the University of Kansas was established by legislative enactment in 1885. The purpose of the School is to give instruction and practical training in all branches connected with the science and art of pharmacy.

The three general divisions of instruction embrace pharmacy, theoretical and practical; chemistry, general and analytical, the latter including pharmaceutical chemistry; and materia medica, including its subdivisions of botany (systematic and histologic), pharmacognosy (macroscopic and microscopic), therapeutics, and toxicology.

DEGREES.

The School offers three curricula, one of two, three, and four years; leading, respectively, to the following degrees: Graduate in Pharmacy; Pharmaceutical Chemist; Bachelor of Science.

ADMISSION.

There are two methods of admission to the School of Pharmacy: First, by examination; second, by certificate.

1. BY EXAMINATION. Time and place of examination for subjects required for admission to the School of Pharmacy are the same as for admission to the College. For schedules, see General Information Section, p. 50.

2. BY CERTIFICATE. Candidates for admission to the two-, three-, and four-year courses must comply with the requirements for admission to the College, viz.: four years of approved high-school work, except that students of mature years who have had two or more years' drug-store experience may be allowed credit on some of the required high-school work. For details write to the Secretary of the Faculty.

Students having entrance deficiencies are required to remove them during the first year.

SPECIAL STUDENTS. Students over twenty-one years of age, not candidates for a degree, are admitted to such courses as, in the judgment of the Faculty, they can pursue with profit. It is hoped that pharmacists throughout the state who wish to increase their efficiency will avail themselves of the opportunities here offered.

REGISTRATION.

All candidates for admission having certificates from accredited schools and all students of the University intending to pursue their studies during the ensuing year must present themselves for registration at the University on September 13, 14, or 15, 1920.

Registration at a later date will be permitted only on the payment of a fee of one dollar.

ENROLLMENT.

After registration has been completed with the Registrar, and after fees have been paid, students should apply to the Dean for enrollment in their classes. Enrollment the first semester occurs September 14 and

15, 1920, and on the first day of the second semester.

Enrollment at a later date will be permitted only on the payment of a fee of one dollar.

FEES AND EXPENSES.

(Subject to change.)

Matriculation fee, for residents of the state.....	\$10.00
for nonresidents of the state.....	15.00
Incidental fee, for residents of the state, per year.....	35.00
for nonresidents of the state, per year.....	45.00
Diploma fee	10.00

In addition to the above fees students pay for the material used and the apparatus broken in the various laboratory courses. This varies with the economy of the student. It ranges from \$12 to \$15 for the first year and from \$23 to \$25 for the second year.

REGISTRATION—STATE BOARD OF PHARMACY.

Graduates of the School of Pharmacy may become registered pharmacists in Kansas without examination upon presenting to the State Board of Pharmacy satisfactory evidence of having had the following amount of practical experience in drug stores where physician's prescriptions are compounded:

Thirty months for graduates of the two-year course.

Twenty-one months for graduates of the three-year course.

Twelve months for graduates of the four-year course.

For detailed information apply to the State Board of Pharmacy.

POSITIONS FOR GRADUATES.

An adjunct to the Pharmaceutical Society has been established, of which the aim is to secure positions for graduates, and clerks for employers who are graduates of the school. At present the demand for clerks is greater than the supply. Applications for positions should be placed with the Secretary of the Faculty.

EQUIPMENT.

The School of Pharmacy occupies the first two floors and basement of the east wing of the Chemistry and Pharmacy Building. The building is arranged specifically for laboratory purposes for the departments of chemistry and pharmacy.

Laboratory instruction for pharmacy students is also given in the laboratories of the following departments: Chemistry, bacteriology, botany, mineralogy, physiology, and physics.

APPARATUS. For the various practical courses offered by this School a large amount of laboratory apparatus of domestic and foreign types is supplied. The various laboratories are equipped for manufacturing purposes, so that any preparation of the United States Pharmacopœia can be made by any of the official methods; and, in addition, appliances and materials are at hand for the unofficial and extra-pharmacopœial products.

The lecture table is abundantly supplied with illustrative apparatus, so that the student may see before him the various processes in operation which may be carried on in the laboratories and at the prescription counters. Care has been taken to illustrate pharmacy in all its phases.

COLLECTIONS. The pharmacy School possesses an extensive herbarium of medical plants, together with a collection of photographs representing nearly 200 species. This, in conjunction with the large herbarium of

the botanical department, is available to students. Several hundred microscope slides are at hand for use with the projection lantern, showing various drugs in cross and longitudinal sections, as well as in powdered form; also a large assortment of lantern slides, illustrating plants, drugs, prescriptions, pharmacies, and places and subjects of pharmaceutical interest; several cases of crystal models; an extensive collection of official and unofficial salts, alkaloids, drugs and medicines, besides numerous smaller collections of particular interest.

LIBRARY. The School possesses an extensive library, and is the regular recipient of the leading pharmaceutical journals and periodicals of America, England, Germany, and France.

For the convenience of students in chemistry and pharmacy a branch library is provided in the building and adjacent to the chemical and pharmaceutical laboratories, where the principal reference books and periodicals may be found.

AMERICAN CONFERENCE OF PHARMACEUTICAL FACULTIES. This School holds membership in the American Conference of Pharmaceutical Faculties. The object of this conference is to promote the interests of pharmaceutical education, and all institutions holding membership in it must maintain certain minimum requirements for entrance and graduation. The fact that several states, by law or through their board rulings, recognize the standards of the conference is evidence of its influence.

THE FAIRCHILD SCHOLARSHIP IN PHARMACY. (For stimulating research.) Mr. Samuel W. Fairchild, of New York City, offers a scholarship annually amounting to \$300 in cash to further research in pharmacy in the United States. The scholarship is awarded by the Fairchild Scholarship Committee to the candidate who is best qualified, as shown by his nonpharmaceutical record, his professional pharmaceutical record and research work done as set forth in published papers, theses, etc.

UNIVERSITY OF ILLINOIS LIBRARY

OCT 18 1920

THE CURRICULUM.

Three definite curricula are provided:

THE TWO-YEAR CURRICULUM is confined to pharmaceutical work, and is designed to meet the requirements of those students who have had one or more years of experience in a drug store and who wish to further qualify themselves for the work of the retail pharmacy.

THE THREE-YEAR CURRICULUM is especially recommended to those students who have had no drug-store experience, and to those who desire a broader course of training than that afforded by the two-year course. Special opportunities are offered in this course for work in the field of drug standardization and analysis.

THE FOUR-YEAR CURRICULUM prepares the student for graduate work. It is especially recommended to all who aim to be food and drug analysts, municipal chemists, biological chemists, sugar chemists, etc.; and allows a liberal choice of electives in the physical, chemical, and biological groups.

Connected with the School of Pharmacy is the state laboratory for drug analysis, which affords unusual opportunities for those who are especially interested in government and state positions.

Choice of Electives should be tentatively made and submitted to the Faculty by the beginning of the Junior year.

Requirements for Graduation. Students desiring to graduate from the four-year curriculum are required to be in residence and regularly registered in the School of Pharmacy during their Senior year, and to have completed the prescribed courses of study with a minimum of 120 hours total credit, including electives, and with grade of A, B or C in at least 80 hours.

TWO-YEAR SCHEDULE.

FIRST YEAR.

FIRST SEMESTER.

<i>Course.</i>	<i>Time.</i>	<i>Hours credit.</i>
Materia Medica I	8:30- 9:20 M. W. F.....	3
Pharmaceutical Botany	10:30-12:20	5
Inorganic Chemistry	9:30-10:20, M. W. F.	5
	1:30- 3:20, Tu. Th.	
Introductory Pharmacy	1:30- 4:20, M. W.	2

SECOND SEMESTER.

Qualitative Analysis	9:30-10:20, Tu. Th.	5
	1:30- 3:20, M. W. F.	
Pharmaceutical Arithmetic	9:30-10:20, M. W. F.	3
Pharmacognosy	10:30-12:20, M. W. F.	5
	10:30-11:20, Tu. Th.	
Official Pharmacy	11:30-12:20, Tu. Th.	2
	1:30- 3:20, Tu. Th.	

SECOND YEAR.

FIRST SEMESTER.

Inorganic Medicinal Chemicals	8:30- 9:20, M. W. F.....	3
Manufacturing Pharmacy	8:30- 9:20, Tu. Th.	4
	1:30- 4:20, Tu. Th.	
Quantitative Analysis	1:30- 4:20, M. W. F.	3
Materia Medica II.....	9:30-10:20, M. Tu. W. T.	4
Toxicology	9:30-10:20, F.	1

SECOND SEMESTER.

Pharmaceutical Chemistry	8:30-11:20, Tu. Th.	2
General Review of Pharmacy	10:30-11:20, M. W.	2
Drug Store Management	10:30-11:20, F.	1
Materia Medica III	10:30-12:20, M. W. Th.	3
Organic Chemistry	1:30- 2:20, M. W. F.	5
	1:30- 3:20, Tu. Th.	
Prescription Practice	2:30- 4:20, M. W. F.	2

THREE-YEAR SCHEDULE.

FIRST YEAR.

FIRST SEMESTER.

<i>Course.</i>	<i>Time.</i>	<i>Hours credit.</i>
Rhetoric E-I	8:30- 9:20, M. W. F.	3
Inorganic Chemistry	9:30-10:20, M. W. F.	
	8:30-10:20, Tu. Th.	5
Pharmaceutical Botany	10:30-12:20,	5
Introductory Pharmacy	1:30- 4:20, M. W.	2

SECOND SEMESTER.

Rhetoric E-II	8:30- 9:20, Tu. Th.	2
Pharmaceutical Arithmetic	9:30-10:20, M. W. F.	3
Foreign Language	10:30-11:20,	5
Official Pharmacy	11:30-12:20, Tu. Th.	2
	1:30- 3:20, Tu. Th.	
Qualitative Analysis	9:30-10:20, Tu. Th.	5
	1:30- 3:20, M. W. F.	

SECOND YEAR.

FIRST SEMESTER.

Materia Medica I	8:30- 9:20, M. F. W.	3
Bacteriology	10:30-12:20,	5
Manufacturing Pharmacy	8:30- 9:20, Tu. Th.	4
	1:30- 4:20, Tu. Th.	
Quantitative Analysis	1:30- 4:20, M. W. F.	3

SECOND SEMESTER.

Pharmacognosy	10:30-12:20, M. W. F.	5
	10:30-11:20, Tu. Th.	
Pharmaceutical Chemistry	8:30-11:20, Tu. Th.	2
Organic Chemistry	1:30- 3:20, Tu. Th.	5
	1:30- 2:20, M. W. F.	
Prescription Practice	2:30- 4:20, M. W. F.	3

THIRD YEAR.

FIRST SEMESTER.

Inorganic Medicinal Chemicals	8:30- 9:20, M. W. F.	3
Materia Medica II	9:30-10:20, M. Tu. W. Th.	4
Toxicology	9:30-10:20, F.	1
Foreign Language .....	.....	5
Elective* .....	.....	2

SECOND SEMESTER.

Micro-analysis of Drugs	10:30-11:20, M. W.	2
General Review of Pharmacy	10:30-11:20, M. W.	2
Drug-store Management	10:30-11:20, M. W.	2
Materia Medica III	11:30-12:20, M. W. Th.	3
Elective* .....	.....	4 or 5

* In the choice of electives the student is required to confer with his Faculty adviser. A student may not elect more than eighteen hours in each semester without special permission from the Faculty. Choice of electives should be tentatively made and submitted to the Faculty by the beginning of the Junior year.

FOUR-YEAR SCHEDULE.

FIRST YEAR.

FIRST SEMESTER.

<i>Course.</i>	<i>Time.</i>	<i>Hours credit.</i>
Rhetoric E-I	1:30- 2:20, M. W. F.	3
Pharmacal Botany	10:30-12:20	5
Inorganic Chemistry	9:30-10:20, M. W. F.	5
	1:30- 3:20, Tu. Th.	
Introductory Pharmacy	1:30- 4:20, M. W.	2

SECOND SEMESTER.

Rhetoric E-II	8:30- 9:30, Tu. Th.	2
Pharmaceutical Arithmetic	9:30-10:20, M. W. F.	3
Qualitative Chemistry	9:30-10:20, Tu. Th.	5
	1:30- 3:20, M. W. F.	
Pharmacognosy	10:30-12:20, M. W. F.	5
	10:30-11:20, Tu. Th.	
Official Pharmacy	11:30-12:20, Tu. Th.	2
	1:30- 3:20, Tu. Th.	

SECOND YEAR.

FIRST SEMESTER.

Mathematics I	9:30-10:20, M. W. F.	3
Materia Medica I	8:30- 9:20, M. W. F.	3
Foreign Language .....	.....	5
Quantitative Analysis	1:30- 4:20	5

SECOND SEMESTER.

Pharmaceutical Chemistry	8:30-11:20, Tu. Th.	2
Mathematics II .....	.....	2
Organic Chemistry	1:30- 2:20, M. W. F.	5
	1:30- 3:20, Tu. Th.	
Foreign Language .....	.....	5

THIRD YEAR.

FIRST SEMESTER.

Inorganic Chemicals	8:30- 9:20, M. W. F.	3
Bacteriology	10:30-12:20	5
Manufacturing Pharmacy	8:30- 9:20, Tu. Th.	4
	1:30- 4:20, Tu. Th.	
Elective* .....	.....	5

SECOND SEMESTER.

Microanalysis of Drugs and Spices	8:30-10:20	5
Physics .....	.....	5
Prescription Compounding	2:30- 4:20, M. W. F.	3
Elective* .....	.....	2

FOURTH YEAR.

FIRST SEMESTER.

Materia Medica II	9:30-10:20, M. Tu. W. Th.	4
Toxicology	9:30-10:20, F.	1
Physics .....	.....	5
Elective* .....	.....	5

SECOND SEMESTER.

General Review	10:30-11:20, M. W.	2
Drug-store Management	10:30-11:20, F.	1
Materia Medica III	11:30-12:20, M. W. Th.	3
Elective* .....	.....	10

* In the choice of electives the student is required to confer with his Faculty adviser. A student may not elect more than eighteen hours in each semester without special permission from the Faculty. Choice of electives should be tentatively made and submitted to the Faculty by the beginning of the Junior year.

DESCRIPTION OF COURSES.*

ANATOMY.

Professors: COGHILL, TRACY.

- M7.—HISTOLOGY AND SPLANCHNOLOGY. Five hours credit.
Coghill, Tracy, and assistants.

BACTERIOLOGY.

Professor: SHERWOOD.

Instructors: TREECE, DOWNS, McNAUGHT.

- 50.—GENERAL BACTERIOLOGY. Five hours credit. Both semesters.
Prerequisite, chemistry 1, or equivalent.

Sherwood, Treece, Downs, McNaught.

- 53.—BACTERIOLOGY OF FOODS AND WATER. Five hours credit. Second semester. Prerequisite, course 50.

Treece, McNaught.

- 54.—SPECIAL METHODS IN BACTERIOLOGY. Five hours credit. First semester. Prerequisite, course 50.

Downs, McNaught.

- 55.—BACTERIOLOGY OF SOILS. Two hours credit. Second semester.

McNaught.

- 57.—IMMUNITY. Five hours credit. Second semester. Prerequisite, course 50.

Downs, McNaught.

- PATHOGENESIS. Five hours credit. First semester. Prerequisites, course 50 and animal history. Offered in 1919-'20.

Sherwood.

- 61.—SPECIAL PROBLEMS IN BACTERIOLOGY. Two to ten hours credit. Either semester, by appointment. Prerequisite, course 50.

Sherwood and the instructor directly concerned.

BIOCHEMISTRY.

Professor: NELSON.

Assistant Professor: ———.

- 50.—BIOLOGICAL CHEMISTRY I. Two hours credit. Second semester. A survey of the field of biochemistry. Lectures, quizzes, laboratory work. The principal topics studied are: the physical chemistry of protoplasm, proteins, carbohydrates, lipins.

Nelson and assistants.

- 51.—BIOLOGICAL CHEMISTRY II. Three hours credit. First semester. A continuation of course 50. The principal topics dealt with are the chemistry of foods, catalysis, enzymes and enzyme action, salivary, peptic and intestinal digestion, the chemistry of blood, bile, urine, feces, metabolism in health and disease.

Nelson and assistants.

- 52.—URINALYSIS. Two hours credit. Elective. Second semester, hours by appointment. The qualitative and quantitative examination of normal and pathological urine.

Nelson.

* C, E, or M before the number of the course indicates that it is offered by the College, School of Engineering, or School of Medicine, respectively.

Courses numbered from 1 to 49 are Freshman and Sophomore courses; from 50 to 99 are Junior and Senior courses; from 100 to 149 are offered only in the Graduate School; from 150 to 200 are Junior and Senior as well as Graduate courses.

DAYS OF MEETING. Courses giving five hours credit meet daily from Monday to Friday, inclusive.

Courses giving three hours credit meet on Monday, Wednesday, and Friday, unless otherwise specified.

Courses giving two hours credit meet on Tuesday and Thursday, unless otherwise specified.

53.—ADVANCED BIOLOGICAL CHEMISTRY. Two or more hours credit. Throughout the year. Conferences and reports on selected topics.

Nelson.

103.—COLLOID CHEMISTRY. Two hours credit. First semester. A study of colloids and the colloidal state of matter. Special emphasis is laid on the applications of colloid chemistry to problems in biochemistry.

Nelson.

101.—RESEARCH IN BIOLOGICAL CHEMISTRY. Two or more hours credit. Throughout the year.

Nelson.

102.—BIOCHEMICAL SEMINAR. Weekly meetings. Prerequisite, a reading knowledge of French and German. Discussion and reports on current biochemical literature.

Nelson.

BOTANY AND PHARMACOGNOSY.

Professors: SAYRE, STEVENS.

Assistant Professor: STERLING.

1.—PHARMACAL BOTANY. Five hours credit. First semester, 10:30 to 12:20. A study of plant tissues, histological technique; the general forms of the flowering plants, and the preparation and preservation of specimens. Laboratory work, lectures, and recitations.

Sterling.

2.—PHARMACOGNOSY. Five hours credit. Second semester, M. W. F., 10:30 to 12:20; Tu. Th., 10:20 to 11:20. An introduction to taxonomy; a study of the geographical distribution, origin and physical characteristics of crude vegetable drugs, and elementary technique in the examination of powdered drugs. Laboratory work, lectures, and recitations. Prerequisite, course 1.

Sterling.

51.—MICROANALYSIS OF POWDERED DRUGS AND FOODS. Five hours credit. First semester, 8:30 to 10:20. Methods in sectioning and staining, the preparation of powders, and microscopical examination. Laboratory work, lectures, and recitations. Prerequisite, course 2.

Sterling.

52.—ADVANCED WORK IN MICROANALYSIS OF DRUGS AND FOODS. Two, three, or five hours credit. First or second semester, by appointment. A course designed to meet the needs of students preparing to be drug and food analysts. Method in plant histology; microchemical technique, and quantitative determination of adulterants. Laboratory work and recitations.

Sterling.

C2.—THE LIVING PLANT, WHAT IT TEACHES ABOUT LIFE AND ITS USES. Five hours credit. First semester.

Stevens.

C4.—PLANT HISTOLOGY. Five hours credit. First semester. Prerequisites, course 1 in the College, course 2 in the College, course 1 in the School of Pharmacy, or its equivalent.

Stevens.

CHEMISTRY.

Professors: BAILEY, CADY, DAINS, ALLEN.

Associate Professor: STRATTON.

Assistant Professors: LONG, ESTES, BREWSTER, ELSEY, WERTHEIM, ROWLAND.

Instructors: BERGER, MURRAY, RAMSAY, BUFFINGTON, WHITE, CHALLIS.

2.—INORGANIC CHEMISTRY. Five hours credit for students presenting high-school chemistry for entrance; six hours for students who have had no chemistry. Lectures and recitations, M. W. F., 8:30 or 9:20. For the six-hour credit there will be an additional recitation at 3:30 Thursday or 9:30 Saturday. Laboratory work, Tu. Th., 8:30 to 10:20, or 1:30 to 3:20.

Cady, Elsey, and assistants.

3.—INORGANIC CHEMISTRY AND QUALITATIVE ANALYSIS. Five hours credit. Second semester. Lectures and recitations, Tu. Th., 8:30 or 9:30. Laboratory, M. W. F., 8:30 to 10:20, or 1:30 to 3:20. Prerequisite, course 2. Cady, Elsey, and assistants.

49.—QUANTITATIVE ANALYSIS. Two, three, or five hours credit. Both semesters, 10:30 to 12:20. Prerequisites, courses 2 and 3. Allen, Rowland.

51.—QUANTITATIVE ANALYSIS I. Two, three, or five hours credit. Both semesters, 10:30 to 12:20, or 1:30 to 3:20. A general course covering the fundamental principles of gravimetric and volumetric analyses. Prerequisite, course 3. Allen, Rowland.

52.—QUANTITATIVE ANALYSIS II. Two, three, or five hours credit. Both semesters, 1:30 to 3:30, or by appointment. In connection with this work some specialty, such as cement, glass, or packing-house industry, rock analysis, paint analysis, etc., may be pursued. Prerequisite, course 51. Allen, Rowland.

52A.—SANITARY WATER ANALYSIS. Three hours credit. Second semester, 10:30 to 12:20. Laboratory work in the sanitary analysis of water and sewage. Lectures and assigned readings on the interpretation of results and upon the methods used. Especially designed to fit students for commercial positions in this line of work. Prerequisite, course 51. Allen.

52C.—GAS ANALYSIS. Two hours credit. First semester, by appointment. A laboratory course of general gasometric methods, analysis of flue gases, artificial and natural gases. Prerequisite, course 51. Allen.

52D.—FOOD ANALYSIS. Three hours credit. Both semesters, by appointment. Lectures and laboratory. Prerequisites, courses 51 and 61, or 62. Long.

52E.—OIL ANALYSIS. Two hours credit. First semester, by appointment. The examination of petroleums and products, lubricating oils, asphalts, and road materials. Prerequisite, course 51. Allen.

52G.—THE CHEMISTRY OF MILLING AND BAKING. Two hours credit. Second semester, by appointment. Designed to meet the requirements of chemists desiring to carry on control work in the milling industry. Prerequisites, courses 51 and 61, or 62. Estes.

52H.—INDUSTRIAL ORGANIC ANALYSIS. Two hours credit. Second semester, by appointment. Includes analysis of soap, paper, leather, starches, etc. Prerequisites, courses 51 and 61, or 62. Estes.

60.—CHEMISTRY OF FOOD PRODUCTS. Five hours credit. Second semester, 3 to 5. A general course for students interested in food supply. It includes a study of the source, composition, adulteration, and use of foods. Special attention is also given to the world's supply of foods, and its manufacture and preparation for the market. Prerequisite, course 1. Bailey.

61.—ELEMENTARY ORGANIC CHEMISTRY. Five hours credit. Both semesters, 1:30 to 3:20. Designed to cover briefly the aliphatic and aromatic series, to discuss the more important derivatives, and to show their relationships and applications. Prerequisite, ten hours chemistry. Dains, Brewster.

62.—ORGANIC CHEMISTRY I. Five hours credit. First semester, M. W. F., at 9:30. Laboratory, Tu. and Th., mornings or afternoons. For College and Engineering students who wish a more detailed knowledge of organic chemistry. In this course the aliphatic series only is discussed, the aromatic series being reserved for organic chemistry 63. Prerequisite, ten hours chemistry. Dains, Brewster.

63.—ORGANIC CHEMISTRY II. Five hours credit. Second semester, M. W. F., at 9:30. Laboratory, Tu. and Th., mornings or afternoons. Aromatic series. Prerequisite, course 62. Dains, Brewster.

70.—PHYSICAL CHEMISTRY, ELECTROCHEMISTRY. Five hours credit. Second semester, at 10:30. A course paying special attention to electrochemistry. Lectures, recitations, and laboratory work. Prerequisites, course 3 and satisfactory preparation in general physics and calculus. Cady.

71.—PHYSICAL CHEMISTRY, GENERAL. Five hours credit. First semester, at 10:30. A general course in theoretical and physical chemistry. Lectures, recitations, and laboratory work. Prerequisites, courses 1, 2, 3, 51, 61 or 62, and satisfactory preparation in general physics and calculus. Cady.

80.—INORGANIC INDUSTRIAL CHEMISTRY. Three hours credit. Second semester, at 11:30. A study of the inorganic industries, including such topics as the manufacture of acids, alkalies and other chemicals, fertilizers, paints and pigments, glass and cement, and the purification of water. Prerequisites, courses 2 and 3. Allen.

81.—ORGANIC INDUSTRIAL CHEMISTRY. Three hours credit. First semester, at 9:30. A study of the organic industries, including such topics as the refining of petroleum, the distillation of wood and coal, packing houses, fermentation, soaps, leather, paper, starches, sugars, dye-stuffs, etc. Prerequisites, courses 2, 3, and 61 or 62. Allen.

ENGLISH LANGUAGE AND LITERATURE.

Associate Professor: RAYMOND.

Instructors: WATTLES, WILSON.

1E.—RHETORIC I. Three hours credit. Both semesters.
Raymond and assistants.

2E.—RHETORIC II. Two hours credit. Both semesters.
Raymond and assistants.

59.—ADVANCED COMPOSITION. Three hours credit. Both semesters; at 8:30 and 9:30. Practice in gathering and analyzing material, and in the presenting of information and opinion in written papers. Elective in Junior or Senior year. Raymond.

FRENCH.

Professor: GALLOO.

Associate Professor: NEUEN SCHWANDER.

Assistant Professors: STANTON, MAHIEU.

Instructors: CRAM, HESS, CATE, CARMAN.

1.—ELEMENTARY FRENCH I. Five hours credit. Both semesters.
Neuen Schwander, Stanton, Mahieu, Cram.

2.—READING AND GRAMMAR. Five hours credit. Both semesters. A continuation of course 1. Neuen Schwander, Stanton, Cram, Perry.

5.—SCIENTIFIC FRENCH. Three hours credit. First semester, by appointment. Prerequisites, courses 1 and 2. Carman.

51.—ELEMENTARY FRENCH I. Five hours credit. First semester, 8:30 or 10:30. For Juniors and Seniors who are beginning French.

Galloo, Cate.

52.—FRENCH READING AND GRAMMAR. Five hours credit. Second semester, 8:30 or 10:30. A continuation of course 51. Galloo, Cate.

GEOLOGY.

Professor: HAWORTH.*Associate Professor:* MOORE.*Assistant Professor:* HAYNES.

2 (or 2a).—ELEMENTARY GEOLOGY. Three hours credit. Each semester, at 8 or 10, with one laboratory period per week from 1 to 3 on Wednesday. A study of the elements of the science, including a general outline of geologic principles and agencies. An acquaintance with elementary chemistry is very desirable in this course. Prerequisite, geology 1. This course must be accompanied by 2b. Moore, Haynes.

2b.—INTRODUCTORY HISTORICAL GEOLOGY. Two hours credit. Each semester, at 8 or 10, with one laboratory period per week from 1 to 3 on Thursday. A study of the more important events in the past history of the earth, as a basis for the correct understanding of the present geography, rock structure, and natural resources of the world. Prerequisite, geology 1. This course must be accompanied by 2 (or 2a). Moore.

GERMAN LANGUAGE AND LITERATURE.

Professors: ENGEL, THURNAU.*Associate Professors:* CORBIN, KRUSE.**Assistant Professor:* STURTEVANT.

1.—ELEMENTARY GERMAN. Five hours credit. First semester, 8:30, 1:30; second semester, 8:30. Engel, Thurnau, Corbin.

2.—GERMAN READINGS AND GRAMMAR. Five hours credit. Both semesters, 8:30 and 11:30. Thurnau, Sturtevant.

3A.—INTERMEDIATE GERMAN. Five hours credit. First semester, 9:30; second semester, 10:30. Thurnau, Sturtevant.

4A.—GERMAN CLASSICS. Three hours credit. First semester, 11:30; second semester, 9:30. Thurnau, Sturtevant.

3B.—SCIENTIFIC GERMAN. Five hours credit. First semester, 8:30; second semester, 9:30. Open to students who have had German 1 and 2. Engel.

4B.—SCIENTIFIC GERMAN. Three hours credit. Second semester, 8:30. Planned as a continuation of course 3B, but is open to students who have had 3A. Engel.

MATHEMATICS.

Professor: ASHTON.*Associate Professors:* MITCHELL, STOUFFER, LEFSCHETZ.*Assistant Professors:* JORDAN, WHEELER.*Instructors:* MARM, BLACK, NELSON, GOUWENS, RICE.

2a.—COLLEGE ALGEBRA. Three hours credit. Both semesters.

Stouffer, Marm.

3a.—PLANE TRIGONOMETRY. Two hours credit. Both semesters.

Stouffer, Black.

4.—ANALYTICAL GEOMETRY I. Two hours credit. Both semesters.

Stouffer.

5.—CALCULUS I. Three hours credit. Both semesters.

Ashton, Mitchell.

6.—ANALYTICAL GEOMETRY II. Two hours credit. Both semesters.

Ashton, Mitchell.

7.—CALCULUS II. Three hours credit. Both semesters.

Stouffer, Mitchell.

* Absent on leave.

PHARMACEUTICAL CHEMISTRY.*Professors: SAYRE, HAVENHILL.*

1.—**PHARMACEUTICAL CHEMISTRY.** Two, three or five hours credit. Second semester, 8:30 to 11:30. A course embracing the fundamental analytical operations as applied, in determining the strength and purity of drugs and medicines. Must be preceded by a course in quantitative analysis. Havenhill.

2.—**PLANT ANALYSIS.** Two and one-half or five hours credit. Elective. Either semester, by appointment. The separation and estimation of the proximate principles of plants. Must be preceded by chemistry 49 and pharmaceutical chemistry 1. Sayre, Havenhill.

3.—**ANALYSIS OF NOSTRUMS.** Five hours credit. Elective. Either semester, by appointment. Must be preceded by pharmaceutical chemistry 4. Sayre.

4.—**ANALYSIS OF DRUGS.** Five hours credit. Elective. Either semester, by appointment. This is a companion course to food analysis (see chemistry 52D) and is arranged especially for students who desire to qualify as food and drug analysts. Must be preceded by chemistry 49 and pharmaceutical chemistry 1. Havenhill.

PHARMACY AND MATERIA MEDICA.*Professors: SAYRE, HAVENHILL, BAILEY, NELSON.*

1.—**INTRODUCTORY PHARMACY.** Two hours credit. First semester. M. W., 1:30-4:20. Lectures, recitations and laboratory. The history of the Pharmacopœia and a study of the apparatus and processes employed in the preparation of medicines. Havenhill.

2.—**PHARMACEUTICAL ARITHMETIC.** Three hours credit. First semester, M. W. F., 9:30. A study of weights, measures, specific gravity, and the principles of pharmaceutical arithmetic. Lectures and recitations. Havenhill.

3.—**OFFICIAL PHARMACY.** Two hours credit. Second semester, Tu. Th., 11:30 to 12:30, 1:30 to 3:30. A systematic study of the official preparations, including their classification, preparation, and preservation. Must be preceded by course 1. Lectures and recitations. Havenhill.

4.—**INORGANIC MEDICINAL CHEMICALS.** Three hours credit. First semester, M. W. F., 8:30. The source, manufacture, physical properties, general and specific characteristics and identity of inorganic substances used in medicine. Lectures, recitations, and laboratory work. Must be preceded by introductory chemistry. Havenhill.

5.—**GENERAL REVIEW OF PHARMACY.** Two hours credit. Senior; second semester, M. W., 10:30. A synoptic review of the essentials of pharmacy, chemistry, and materia medica. Havenhill.

6.—**DRUG-STORE MANAGEMENT.** One hour credit. Senior, second semester, F., 10:30. A lecture course with collateral reading relating to the legal and business problems confronting the retail pharmacist.

Sayre, Havenhill, Spencer, and invited lecturers.

7.—**LIBRARY WORK.** Hours by appointment, second semester. Specially designed to familiarize the student with pharmaceutical literature; will include exercises in indexing and reviewing. Sayre.

8.—**Manufacture of artificial fruit essences and other compound ethers.** Sayre.

9.—**PHARMACEUTICAL JURISPRUDENCE.** Hours by appointment. A study of the laws pertaining to pharmacy in different states, and to the laws pertaining to the mercantile business, together with practical busi-

ness suggestions. A course of not less than ten lectures, given in connection with the Pharmaceutical Society.

10.—ELEMENTARY ACCOUNTING. Hours by appointment. A course of lectures covering the principles of accounting applicable to the business of pharmacy. Given under the supervision of the Department of Economics and Commerce.

11.—MATERIA MEDICA (School of Medicine). Five hours credit, second year, first semester, 10:30 to 12:20, M. W. F.; 11:30 to 12:20, Tu. Th. Critical study of the various classes of drugs and their officially recognized preparations. This course is divided into 4 groups: (a) Inorganic medicinal chemicals, (b) medicinal agents of hydrocarbon groups as recognized by the American Medical Association, (c) vegetable drugs, (d) drugs of animal origin, serums, glandular products, etc.

11a.—CONTINUATION OF COURSE AT ROSEDALE. Second semester, two hours, 1 to 3. A continuation of the above course in which groups (c) and (d) are discussed.

50.—MANUFACTURING PHARMACY. Four hours credit. Senior, first semester, Tu. Th., 8:30 to 9:20, 1:30 to 4:20. Practical work in the manufacture of standard medicinal preparations, as contained in the Pharmacopœia and National Formulary. Laboratory work and recitations. Must be preceded by pharmacy 1, 2, 3, 4, and botany 1.

Havenhill and assistants.

51.—PRESCRIPTION PRACTICE. Two hours credit. Senior, second semester, M. W. F., 2:30 to 4:20. Compounding of prescriptions and a practical study of incompatibilities. Lectures and laboratory work. Prerequisite, course 50.

Havenhill and assistant.

12.—MATERIA MEDICA I. Three hours credit. First semester, M. W. F., at 8:30. The classification and therapeutic effects of drugs and medicines.

Nelson and assistant.

52.—MATERIA MEDICA II. Four hours credit. Senior, first semester, 9:30. A critical study of the drugs and preparations of the U. S. Pharmacopœia and National Formulary. Lectures and recitations.

Sayre.

53.—MATERIA MEDICA III. Three hours credit. Senior, second semester, M. W. Th., at 11:30. The classification, physical description and chemical constitution of the crude drugs of the pharmacopœias; their chemical and physiological properties, and therapeutic application; methods of prescribing and dispensing; the action of organic and inorganic chemicals and their physiological relationships. Lectures and recitations.

Sayre.

54.—TOXICOLOGY. One hour credit. Senior, first semester, F., 9:30. Lectures on poisons, their history, source, properties, methods of detection and antidotes. Must be preceded by fifteen hours of chemistry.

Bailey.

55.—THESIS. Five hours credit. Senior, second semester. Original research in one of the subjects connected with the pharmaceutical profession. An outline of the work should be presented to the Dean by the first of the second semester.

PHYSICS AND ASTRONOMY.*Professor:* KESTER.*Associate Professor:* M. E. RICE.*Assistant Professor:* STIMPSON.*Instructors:* WARNEE, BROWN.

2.—DEVELOPMENT OF PHYSICS. Five hours credit. Kester.

3a.—GENERAL PHYSICS. Three hours credit. First semester. Kester.

3b.—GENERAL PHYSICS. Three hours credit. Second semester. Kester.

4a.—GENERAL PHYSICS LABORATORY. Two hours credit. First semester. Stimpson, Warner, Brown.

4b.—GENERAL PHYSICS LABORATORY. Two hours credit. Second semester. Stimpson, Warner, Brown.

PHYSIOLOGY AND PHARMACOLOGY.*Professor:* STOLAND.

M1.—PHYSIOLOGY AND PHARMACOLOGY. Five hours credit. Second semester. Lectures, recitations, and laboratory work. A course dealing with the action of the more important drugs and the physiology of the organs that are especially involved in such action. Stoland.

CORRESPONDENCE COURSES.

Through the Correspondence-Study Department of the Extension Division, pharmacy is offered designed especially for apprentices as follows: (1) Courses for those who wish to become registered assistant pharmacists or registered pharmacists; (2) a program of studies indorsed by the Kansas State Board of Pharmacy, and leading to a correspondence certificate; (3) technical courses in introductory pharmacy, organic materia medica, and pharmacy physiology.

For details, see University Extension Division announcements, under "Pharmacy."

FOOD AND DRUG ANALYSIS.

The legislature in 1905 passed a bill making it the duty of the chemistry departments of the University and the State Agricultural College, under the direction of the State Board of Health, to make analyses of samples of foods, drugs and beverages collected by any county or city board of health of the state of Kansas and to make reports upon the same.

For details of the work, see Section XII of the Catalog.

For *The Pharmaceutical Society*, see General Information Section of Catalog, under "University Organizations."

SECTION VIII.

The School of Medicine.

(303)

FACULTY.

- FRANK STRONG, Ph. D., President.
MERVIN T. SUDLER, Ph. D., M. D., Associate Dean and Professor of Surgery.
EDGAR H. S. BAILEY, Ph. D., Professor of Chemistry.
LUCIUS E. SAYRE, Ph. H., Professor of Pharmacy.
JACOB BLOCK, M. D., Professor of Genito-urinary Surgery.
SAMUEL S. GLASSCOCK, M. D., Professor of Psychiatry.
IASADORE J. WOLF, M. D., Professor of Medicine.
FRANKLIN E. MURPHY, M. D., Professor of Clinical Medicine.
L. D. HAVENHILL, B. S., Professor of Pharmacy.
SAMUEL J. CRUMBINE, M. D., Professor of Preventive Medicine.
LYMAN L. UHLS, M. D., Professor of Psychiatry.
ANDREW L. SKOOG, Ph. D., Professor of Neurology.
LINDSAY S. MILNE, M. B., M. D., Professor of Medicine.
BENNET M. ALLEN, Ph. D., Professor of Zoölogy.
EDWARD J. CURRAN, M. D., D. Oph., Professor of Ophthalmology.
FRANK B. DAINS, Ph. D., Professor of Chemistry.
DON C. GUFFEY, A. M., M. D., Professor of Obstetrics and Gynecology.
PETER T. BOHAN, M. D., Professor of Medicine.
GEORGE M. GRAY, M. D., Professor of Clinical Surgery.
RICHARD L. SUTTON, M. D., Professor of Dermatology.
WILLIAM L. MCBRIDE, M. D., Professor of Dermatology.
GEORGE E. COGHILL, Ph. D., Professor of Anatomy.
OLE O. STOLAND, Ph. D., Professor of Physiology and Experimental Pharmacology.
C. FERDINAND NELSON, Ph. D., M. D., Professor of Biochemistry.
NOBLE P. SHERWOOD, B. S., A. M., Professor of Bacteriology.
ARTHUR E. HERTZLER, Ph. D., M. D., Professor of Surgery.
CHARLES A. HASKINS, B. S., Professor of Sanitary Engineering.
HARRY R. WAHL, M. D., Professor of Pathology and Bacteriology.
HENRY C. TRACY, Ph. D., Professor of Anatomy.
WILLIAM F. KUHN, A. M., M. D., Professor of Neurology.
ROBERT M. SCHAUFFLER, A. B., M. D., Associate Professor of Surgery.
WILLIAM K. TRIMBLE, M. D., Associate Professor of Pathology.
ORVAL J. CUNNINGHAM, M. D., Associate Professor of Surgery (Anesthetics).
ROBERT D. IRELAND, M. D., Associate Professor of Obstetrics and Gynecology.
THOMAS D. TUTTLE, Associate Professor of Preventive Medicine.
THOMAS G. ORR, A. B., M. D., Associate Professor of Surgery, and Chief of the Dispensary.
CLARENCE B. FRANCISCO, A. B., M. D., Associate Professor of Orthopedic Surgery.
NADINE NOWLIN, A. M., Assistant Professor of Zoölogy.
EDWARD P. HALL, M. D., Assistant Professor of Rhinolar yngology.
JOSEPH E. WELKER, B. S., Assistant Professor of Pharmacology.
DONALD R. BLACK, A. B., M. D., Assistant Professor of Pathology.

HERBERT F. VANORDEN, M. D., Assistant Professor of Gynecology and Obstetrics.
 CHARLES C. DENNIE, M. D., Assistant Professor of Dermatology.
 SAM E. ROBERTS, M. D., Assistant Professor of Otorhinolaryngology.
 CARLOS I. REED, A. B., Assistant Professor of Physiology.
 NELSE F. OCKERBLAD, B. S., M. D., Assistant Professor of Surgery.
 HUBERT SHEPPARD, Ph. D., Assistant Professor of Anatomy.
 CLIFFORD C. NESSELRODE, M. D., Instructor in Surgical Anatomy.
 JOSEPH L. McDERMOTT, M. D., Instructor in Roentgen Therapy.
 LAURENCE A. LYNCH, M. D., Instructor in Medicine.
 JOSEPH B. COWHERD, M. D., Instructor in Medicine.
 HARVEY P. BOUGHNOU, M. D., Instructor in Medicine.
 PAUL M. KRALL, A. B., M. D., Instructor in Medicine.
 WILSON A. MYERS, M. D., Instructor in Medicine.
 BEATRICE MCKINLEY, A. B., Technician in Pathology and Bacteriology.
 VIRGIL W. MCCARTY, A. B., M. D., Instructor in Otorhinolaryngology.
 GEORGIA TUCKER, Technician, Dispensary Laboratory.
 EDGAR E. PICKENS, M. D., Assistant in Ophthalmology.
 FRED C. RUMSEY, M. D., Assistant in Surgery.
 JOHN L. MYERS, A. B., M. D., Dispensary Attendant.
 ELEANOR M. KIBBEY, A. B., Secretary and Assistant Registrar.
 EVELYN STANTON, A. B., Librarian.
 S. MILO HINCH,* Superintendent of Bell Memorial Hospital and Supervisor of Nurses.
 ELIZABETH TALLE, Cashier and Clerk of the Bell Memorial Hospital.
 ADA G. EHRLMAN, R. N., Assistant in Operating Room.
 KATE NOBLE, R. N., Assistant in the Dispensary.
 GRACE O. SCOTT, R. N., Assistant in Roentgenology.
 ROBERT M. ISENBERGER, A. B., Demonstrator in Physiology.
 HENRY N. STONE, Technician in Anatomy.
 JOHN H. KORB, B. S., Assistant Instructor in Physiology.
 HOWARD D. H. BROWN, A. B., Assistant Instructor in Anatomy.
 LEWIS C. FOSTER, A. B., Assistant Instructor in Anatomy.
 OSCAR F. BRADFORD, A. B., M. D., Assistant in Pediatrics.
 CLAUDE J. HUNT, A. B., M. D., Assistant in Medicine.
 NEWTON SEEHORN, M. D., Assistant in Surgery.
 JOHN M. SINGLETON, A. B., M. D., Assistant in Gynecology and Obstetrics.
 ROBERT C. DAVIS, A. B., M. D., Assistant in Medicine.
 LOGAN CLENDENNING, A. B., M. D., Assistant Instructor in Medicine.
 DAMON WAITHALL, A. B., M. D., Assistant in Pediatrics.

ADMINISTRATIVE COMMITTEE.

M. T. SUDLER,	N. P. SHERWOOD,
L. E. SAYRE,	D. C. GUFFEY,
O. O. STOLAND,	F. E. MURPHY,
P. T. BOHAN,	E. J. CURRAN,
GEORGE E. COGHILL,	F. B. DAINS,
E. P. HALL,	A. E. HERTZLER,

H. R. WAHL.

* Died February 29, 1920.

THE SCHOOL OF MEDICINE.

HISTORY.

In the act of the legislature establishing the University (1862) the founding of a School of Medicine was contemplated, but conditions were such that it was impossible to carry out these plans at this time. However, steps were taken, as opportunity offered, to further the formation of a School of Medicine, and in 1880 the "Preparatory Medical Course," under the administration of the College, was established. This continued until 1899, when the School of Medicine was definitely organized, and the first two years of medical instruction were offered.

In the fall of 1905 the Kansas City Medical College (founded in 1869), the Medico-chirurgical College founded in 1896), and the College of Physicians and Surgeons (founded in 1893), were merged into the last two years of a four-year medical course under direction of the University of Kansas. This was made possible through a gift to the University of some tracts of land in and about Rosedale, Kan., by Dr. Simeon B. Bell, in memory of his wife, Eleanor Taylor Bell. The work was first given in the laboratory and lecture rooms of the building which had formerly belonged to the College of Physicians and Surgeons and a dispensary was conducted in the building of the Medico-chirurgical College. In January, 1907, the school was moved to the new buildings which had been erected in Rosedale, on the land referred to above.

ORGANIZATION.

THE FACULTY. The faculty of the School of Medicine includes members who give instruction in the work of the first year and a half at Lawrence, and those giving instruction in the work of two and one-half years at Rosedale.

THE ADMINISTRATIVE COMMITTEE. The administrative committee of the School of Medicine has charge of matters affecting the School as a whole, subject to the rules of the Board of Administration. It is appointed annually by the Chancellor.

THE WORK AT LAWRENCE. The work of the first year and a half is given at Lawrence. It consists of the fundamental scientific branches: anatomy, neurology, histology, embryology, physiology, pharmacology, chemistry, bacteriology, etc. The medical students have all the advantages of the University laboratories, libraries, museums, and lectures.

Students should matriculate and register for the first year and a half at Lawrence.

THE WORK AT ROSEDALE. The work of the last half of the second year and the third and fourth years is intended largely to familiarize the student with the various manifestations of diseases and their treatment. Much of the work is done by the bedside, and the student has an opportunity to observe all the processes of making a diagnosis and prescribing the treatment.

DEGREES.*

The degree of doctor of medicine is now granted to those satisfactorily completing the work of the four-year medical curriculum, but the right is reserved to require a fifth interne year under Faculty supervision. The faculty of the School of Medicine determines the standards, examinations,

* For a detailed statement of the rules and regulations of the School of Medicine the student is referred to the special bulletin containing them.

curriculum, etc., leading to the degree of doctor of medicine, and may change these from time to time as necessary or desirable.

Candidates for the degree of doctor of medicine may, under the plan for a six-year curriculum explained below, receive from the College of Liberal Arts and Sciences the degree of bachelor of arts, or the degree of bachelor of science in medicine.

The following plan has been arranged with the College:

College students who have attained at least full Senior standing and who have credit for certain subjects named below may offer in satisfaction of all or part of the requirement of the Senior year the entire first year of the medical curriculum. To such students the College will grant the degree of bachelor of arts.

College students who have attained at least full Junior standing and who have credit for certain subjects named below may offer in satisfaction of all or part of the requirements of the Junior and Senior years the entire first and second years of the medical curriculum. To such students the College will grant the degree of bachelor of science in medicine.

The subjects or equivalents, which must have been completed before admission to the Medical School are:

Modern language, ten hours.

Chemistry, 10 hours, including 2 and 3.

Physics 5a, and 5b.

Biology, which should include zoölogy 3, and five hours selected from botany 3, zoölogy 1, 2 and 57.

To secure this privilege of offering medical work towards the College degree, the student must have spent one full year in residence at the College before entering upon his medical studies, and must be certified to the Medical School by the Dean of the College as having met all the requirements above named. He must also register in the College as well as the Medical School and be subject to such general regulations of the College Faculty as govern other Juniors and Seniors.

A student who does not fully meet the entrance requirements to the Medical School will enroll in College classes necessary to complete such requirements, after which he may be admitted to the Medical School and enrolled in medical courses, but the aggregate number of hours of such enrollment in the two schools may not exceed that allowed to College students.

Whenever a student has completed the medical work in accordance with the foregoing provisions, the Dean of the Medical School will submit to the Dean of the College a certified statement of that fact accompanied by the recommendation of the Faculty of the School of Medicine that such student be admitted to the appropriate College degree. The name of the candidate will then be sent to the College Faculty as that of a candidate for that degree.

Proportion of High Grades Required for Degrees.

I. A student in order to be accepted for the degree of bachelor of science in medicine must have received a grade of I or II, or of A, B, or C, in at least 90 hours. See College Section of Catalog for details.

II. A student in order to be accepted for the degree of doctor of medicine must have received the grades of A, B, or C, in at least three-fourths of the hours required for graduation.

REQUIREMENTS FOR ADMISSION.

For entrance into the School of Medicine a student must have completed sixty hours (two years) of work in the College of Liberal Arts and Sciences of the University of Kansas, or work equivalent thereto.

The student who has completed the first two years of college work in another school, and who desires to enter the Medical School, should send a certified transcript of his work to the chairman of the committee on ad-

vanced standing, or the Registrar of the University. A rating will then be given on this work, showing the exact terms on which he will be admitted.

Students who do not meet the requirements will not be enrolled as medical students. College students, however, may enroll in certain medical courses recognized by the College.

This preliminary college work must include the following:

English	5 hours.
Chemistry	10 hours.
Physics	8 hours.
Biology	10 hours.
Modern Language	10 hours.

For description of courses, see alphabetical list in College Section of Catalog. These or their equivalent will be accepted.

The minimum requirement in chemistry is general and qualitative chemistry, but the student is strongly advised to include in his preliminary work a course in qualitative analysis. If time permits, some work in quantitative analysis should be done, as it affords an excellent preparation for physiological chemistry.

The physics requirements include at least eight hours of college physics. Courses 5a and 5b are highly recommended.

The minimum requirement in biology is zoölogy 3 and five hours selected from botany 3, zoölogy 1, 2 and 57. The course in parasitology (zoölogy 57) is strongly recommended as a premedical study because of the unusual opportunity it affords the student of becoming familiar with the animal parasites which infest man.

Of the modern languages French and German are particularly urged on account of the wealth of medical literature in these languages.

Optional Work.

For the rest of the two years' college work, courses in psychology, history and economics are advised, in order to give the student as broad a foundation as possible for his technical studies in the Medical School.

HIGH-SCHOOL SUBJECTS.

High school pupils who anticipate the study of medicine are strongly urged to include in their high school subjects, A, two units of Latin (Elementary Grammar and Cæsar, since this is required in some states of candidates for medical registration); B, two or three units of modern language, preferably French or German (this will decrease the amount of modern language required in college and thus give opportunity of other electives); C, one unit each of physics and chemistry with laboratory work; D, one and one-half units of algebra and one-half unit of trigonometry (if not presented for entrance, it must be taken in college as a prerequisite for college physics).

The group and percentage grade requirements in the College must be fulfilled. The above-named courses, as a rule, fit in with these group requirements. *Every prospective medical student is urged to consult the Associate Dean or the Secretary or any member of the committee on entrance and advanced standing of the School of Medicine in regard to this preparatory work.*

Admission to Advanced Standing.

Credit for work of collegiate or professional standing is granted only on recommendation of the committee on entrance and advanced standing. For regulations governing the granting of such credit see "Admission to Advanced Standing," Section 1, page 50.

After January 1, 1922, admission to the clinical branches will be denied those students whose work for the first three and one-half years of the combined College and medical course falls below the average requirement for the degree of bachelor of science in medicine.

All candidates for admission having certificates from accredited schools and all students of the University intending to pursue their studies during the ensuing year must present themselves for registration at the University on September 13, 14, 15, 1920. *Registration at a later date will be permitted only on special permission of the faculty and the payment of a fee of one dollar.*

After registration has been completed with the Registrar, and fees have been paid, students should apply to the Dean for enrollment in their classes. Enrollment the first semester occurs September 14, 15, 1920, and on the first day of the second semester. *Enrollment at a later date will be permitted only on special permission of the faculty and the payment of a fee of one dollar.*

FEEES.

Matriculation fee, for residents of the state.....	\$10.00
for nonresidents	15.00
Incidental fee, for residents of the state.....	35.00
for nonresidents	45.00
Diploma fee, at graduation.....	10.00
Microscope fee	6.00

All laboratory fees must be paid before enrollment in classes. Receipts for the same will be required by class instructors before admitting students to class.

Students who register in the departments at Rosedale, not having been previously enrolled as students of the University of Kansas, are required to pay the regular matriculation fee—for residents of Kansas, \$10; for nonresidents, \$15.

Students will also be required to rent a microscope (\$3 per semester) and to pay the actual cost of materials and apparatus of every kind consumed, wasted, lost, or broken. A stock room is provided where students may purchase any additional material needed, or they may secure the same, if they prefer, in the open market, provided the form and grade of such articles are approved by the instructor in charge.

OUTSIDE OCCUPATION. It is not advisable to attempt to carry full work in the Medical School and to engage in outside occupation. If it is necessary for students to earn a portion of their expenses while in school a longer time will be required to complete the course. Should students for any reason be unable to carry full work, they may, at the discretion of the Associate Dean, be withdrawn from certain courses.

EQUIPMENT.

LABORATORY. For the work of the first two years of the medical course at Lawrence the scientific equipment of the University is available. The greater part of the work of the first two years is of a purely scientific character, and most of the student's time is spent in laboratories. The instruction is given by men who devote themselves entirely to teaching.

The Laboratory Building at Rosedale contains teaching laboratories, private laboratories for instructors, the necessary lecture rooms, morgue and specimen rooms, animal rooms, business offices, and the library. The museum contains more than one thousand specimens, preserved in Kaiserling's fluid. A sufficient number of microscopes is provided so that each student has his own microscope. *However, students are urged to purchase their own microscopes in their first year.*

LIBRARY. The library at Rosedale is a part of the general University library and is managed as such. The files of periodicals have been carefully selected, with a view to training the student to use the best in current medical literature. There is a collection of reprints and dissertations. Carefully selected monographs and textbooks are added from year to year.

HOSPITAL. The hospital has accommodations for sixty-five patients. Clinical material is furnished, first, by free patients (the expense being met by legislative appropriation) who are sent in from the dispensary or by the heads of the departments; second, by county cases which are sent in under the laws passed by the legislature permitting counties to send their charity cases to this hospital for treatment, the counties paying the actual expenses incurred; third, by patients who can afford to pay hospital fees and who are admitted as clinical patients on presenting a letter from their family physician stating that they cannot afford to pay for professional services and are recommended for free treatment.

Internes are appointed out of every graduating class to serve in the hospital. The internes are selected by the Administrative Committee from the applicants who have made the highest average in their work during the medical course.

DISPENSARY. The out-patient department is housed in the Dispensary Building. It is a two-story fire-proof building, containing a drug room, a laboratory, a lecture room, a waiting room, and consultation rooms. It is open from 10 to 12 a. m. and from 2 to 4 p. m., Sundays and holidays excepted. Here students have an opportunity to study and examine ambulant patients under competent supervision in the clinic.

OPPORTUNITIES IN CITY HOSPITALS. Instruction is also given at St. Margaret's Hospital of Kansas City, Kan., by permission of the Sisters who control the institution. Its capacity is three hundred beds. Fourth-year students spend two mornings a week in this hospital. The school is allowed similar privileges by the authorities of Mercy Hospital, where instruction in pediatrics and orthopedics is given.

CURRICULUM.

FRESHMAN YEAR.

FIRST SEMESTER (at Lawrence):

Anatomy 1, 2, 3, 4—Human Dissection.
Anatomy 7—Histology and Splanchnology.
Organic Chemistry 61M or Biochemistry 50.

SECOND SEMESTER (at Lawrence):

Anatomy 1, 2, 3, 4—Dissection.
Anatomy 8—Embryology.
Anatomy 9—Neurology.
Biochemistry 50 or Physiology 1.

Students taking organic chemistry the first semester, enroll in biochemistry the second semester, and take Physiology 1 in the following Summer Session.

SOPHOMORE YEAR.

FIRST SEMESTER (at Lawrence):

Physiology 2.
Bacteriology.
Toxicology.
Introductory Pharmacology and Materia Medica 1, 2.
Anatomy 6, Topographical.

SECOND SEMESTER (at Rosedale):

Pathology 1.
Experimental Pharmacology 1, 2.
Materia Medica, Pharmacology 3.
Medicine 2, 3.
Surgery 1, 2.
Obstetrics 1.
Hygiene.
Ophthalmology 1.
Pediatrics.

JUNIOR YEAR. (At Rosedale.)

FIRST SEMESTER:

Medicine 4, 5, 6.
Surgery 3, 5, 7, 12.
Obstetrics 2.
Pathology 4.
Ophthalmology 2.
Pediatrics 1.

SECOND SEMESTER:

Medicine 4, 5, 7, 8, 13.
Surgery 4, 7, 8, 9.
Obstetrics 3, 4.
Ophthalmology 2.
Neurology 1.
Otorhinolaryngology 1, 2.
Pediatrics 2.
Hematology, Serology.
Dermatology.

SENIOR YEAR. (At Rosedale.)

FIRST SEMESTER:

Medicine 10, 11.
Surgery 10, 12, 13, 14, 15, 17.
Obstetrics 7, 8.
Neurology 2, 3, 4.
Pediatrics 3.
Otorhinolaryngology 3, 4.
Ophthalmology 3.

SECOND SEMESTER:

Medicine 10, 11, 13.
Surgery 11, 12, 13, 14, 15, 17.
Gynecology, Obstetrics 7, 8.
Neurology 2, 3.
Dermatology 2.
Pediatrics 3.
Otorhinolaryngology 3, 4.
Ophthalmology 3.

SCHEDULE: FIRST YEAR, FIRST SEMESTER.

Hour.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
8:30		Histology		Histology.		Biochemistry.
9:30	Anatomy.	Anatomy.		Anatomy.	Anatomy.	Biochemistry.
10:30	Anatomy.	Anatomy.		Anatomy.	Anatomy.	Biochemistry.
11:30	Anatomy.	Anatomy.		Anatomy.	Anatomy.	
1:30	Organic chemistry or Biochemistry.	[Organic chemistry or Biochemistry.	Organic chemistry or Biochemistry.	Organic chemistry or Biochemistry.	Organic chemistry or Biochemistry.	
2:30	Histology.	Organic chemistry or Biochemistry.	Histology.	Organic chemistry or Biochemistry.	Histology.	
3:30	Histology.	Organic chemistry or Biochemistry.	Histology.	Organic chemistry or Biochemistry.	Histology.	
4:30	Histology.		Histology.		Histology.	

SCHEDULE: FIRST YEAR, SECOND SEMESTER.

Hour.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
8:30	Embryology.		Neurology.		Neurology.	Biochemistry.
9:30	Anatomy.	Anatomy.		Anatomy.	Anatomy.	Biochemistry.
10:30	Anatomy.	Anatomy.		Anatomy.	Anatomy.	Biochemistry.
11:30	Anatomy.	Anatomy.		Anatomy.	Anatomy.	
1:30	Biochemistry or Physiology.	Biochemistry or Physiology.	Biochemistry or Physiology.	Biochemistry or Physiology.	Biochemistry or Physiology.	
2:30	Embryology.	Biochemistry or Physiology.	Neurology.	Biochemistry or Physiology.	Neurology.	
3:30	Embryology.	Biochemistry or Physiology.	Neurology.	Biochemistry or Physiology.	Neurology.	
4:30	Embryology.		Neurology.		Neurology.	

SCHEDULE: SUMMER SESSION.

Students who take Biochemistry the second semester will take the first half of Physiology in the Summer Session following the first year.

SCHEDULE: SECOND YEAR, FIRST SEMESTER.

Hour.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
8:30	Physiology.	Physiology.	Physiology.	Physiology.	Physiology.	Anatomy 6.
9:30		Physiology.		Physiology.	Toxicology.	Anatomy 6.
10:30	Materia Medica.	Physiology.	Materia Medica.	Physiology.	Materia Medica.	Anatomy 6.
11:30	Materia Medica.	Materia Medica.	Materia Medica.	Materia Medica.	Materia Medica.	
1:30	Bacteriology.	Bacteriology.	Bacteriology.	Bacteriology.	Bacteriology.	
2:30	Bacteriology.	Bacteriology.	Bacteriology.	Bacteriology.	Bacteriology.	

SECOND YEAR—SPRING SEMESTER, 1919-1920.

Hour.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
8:00			PHYSICAL DIAGNOSIS. Dr. Boughnour.		PHYSICAL DIAGNOSIS. Dr. Boughnour.	PHARMACOLOGY QUIZ.
9:00	PATHOLOGY. Dr. Wahl.	PATHOLOGY. Dr. Wahl.	CLINICAL PATHOLOGY. Dr. Black.	PATHOLOGY. Dr. Wahl.	PATHOLOGY QUIZ. Dr. Wahl.	PHYSICAL DIAGNOSIS. (Dispensary.) 2d Half-semester.
10:00					PATHOLOGY GROSS. Dr. Wahl.	MINOR SURGERY and BANDAGING. Dr. Orr. First Half-semester.
11:00		OBSTETRICS. Dr. Van Orden.	HISTORY of MEDICINE. Dr. Wahl.	OBSTETRICS. Dr. Van Orden.		ANESTHETICS. (Surgery.) Dr. Cunningham.
1:00						
2:00	TOPOGRAPHICAL ANATOMY. Dr. Sheppard.	PHARMACOLOGY.			MATERIA MEDICA. Dr. Sayre.	
3:00					HYGIENE. Mr. Welker.	

THIRD YEAR—FALL TERM SCHEDULE, 1919-1920.

Hour.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
8:00	MEDICINE 4. Dr. Myers.	SURGERY 4. Dr. Orr.	DERMATOLOGY. Dr. Dennie.	MEDICINE 4. Dr. Myers.	SURGERY 5. Dr. Orr.	MEDICINE 4. Dr. Boughnau.
9:00	OBSTETRICS 3. Dr. Gufey.	MEDICINE 4. Dr. Bohan.	OBSTETRICS 3. Dr. Gufey.	MEDICINE 7. Dr. Wolf.	MEDICINE 7. (Laboratory Diagnosis.) Dr. Black.	SURGERY 15. Dr. Francisco.
10:00	MEDICINE 5. Dr. Murphy.	SURGERY 7. Dr. Block.	DISPENSARY § MEDICINE.	§ MEDICINE 5. Dr. Murphy.		
11:00	§ DISPENSARY MED. and SURG.	NEUROLOGY. Dr. Kuhn.	§ SURGERY.	§ DISPENSARY MED. and SURG.		NEUROLOGY. Dr. Kuhn.
1:00	SURGERY 4. Dr. Sudler.	MEDICINE 7. (Laboratory Diagnosis.) Dr. Black.	OPHTHALMOL. Dr. Curran.	MEDICINE QUIZ. Dr. Krall.	MEDICINE QUIZ. Dr. Krall.	
2:00	PATHOLOGY. Dr. Wahl.		PEDIATRICS. Dr. Cowherd.	PATHOLOGY. Dr. Wahl.	SURGERY 4. Dr. Sudler.	
3:00	MEDICINE. DIAGNOSIS.	PHYS. PATH. Dr. Wahl.			PHYS. PATH. Dr. Wahl.	

THIRD YEAR—SPRING SEMESTER, 1919-1920.

Hour.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
8:00	MEDICINE 4. Dr. Myers.		SURGERY 9. Dr. Sudler. § A.	MEDICINE 4. Dr. Myers.	CHEMICAL PATHOLOGY. Dr. Wahl.	DERMATOLOGY 1. Dr. Dennie.
9:00	SURGERY 13. ROENTGENOLOGY. Dr. Diveley.	MEDICINE 4. Dr. Milne.		RHINOLARYN- GOLOGY. Dr. Hall.	MEDICINE 8. Dr. Wolf.	MEDICINE 4. Dr. Snider.
10:00	MEDICINE 5. Hospital § A. Dr. Murphy.	SURGERY 7. Dr. Ockerblad.	OPHTHALMOLOGY 3. Dr. Curran. § B.	Hospital § A. MEDICINE 5. Dr. Murphy.	MINOR SURGERY. Dr. Orr.	SURGERY 15. Dr. Francisco.
11:00	DISPENSARY. Dr. Trimble. § B.	OBSTETRICS 5. Dr. Ireland.		DISPENSARY. Dr. Trimble. § B.	OBSTETRICS 3. Dr. Ireland.	RHINOLARYN- GOLOGY 2. Dr. Hall.
1:00	SURGERY 4. Dr. Sudler.	§ A. SURGERY 9. Surgery Ward. Rounds, Dr. Orr.	OPHTHALMOLOGY. Dr. Curran.	SURGERY 4. Dr. Sudler.	MEDICINE 4. Dr. Krall.	
2:00	MEDICINE. Dr. Krall.	SURGERY 8. Dr. Hertzler.	PATHOLOGY GROSS. Dr. Wahl.	SURGERY 8. Dr. Hertzler.	PEDIATRICS. Dr. Bradford.	
3:00					PREVENTIVE MEDICINE 1. Mr. Welker.	
4:00			OBSTETRICS 4. Dr. Van Orden.		CLINICAL PATH. Conference.	

FOURTH YEAR—FALL TERM SCHEDULES, 1919-1920.

Hour.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9:00	St. Margaret's Hospital.	MEDICINE 10. Dr. Lynch.	§ At Mercy.	St. Margaret's Hospital.	OBSTETRICS. (Clinic.) Dr. Guffey, § B. and § C.	DERMATOLOGY. Dr. Sutton.
10:00	§ I : 8-12. SURGERY 14. Dr. Gray.	§ C. SURGERY 11. Dr. Hertzler.	§ II. SURGERY 9. Dr. Sudler.	§ II : 8-12. SURGERY 14. Dr. Gray.		
11:00	§ II : 8-12. Specialties.	§ B. SURGERY 15. Dr. Francisco.	§ I. OPHTHALMOLOGY. Dr. Curran.	§ I : 8-9. Specialties.	§ A. Dispensary. OPHTHALMOLOGY. Dr. Curran.	MEDICAL CLINIC. (Preparation.) Dr. Bohan.
	§ II : 9-12. MEDICINE. Milne and Lynch.	§ A. MEDICINE. Dr. Bohan.		§ I : 9-12. MEDICINE. Milne and Lynch.		
	§ At Mercy.	§ At Mercy.	At Mercy.	§ At Mercy.	§ At Mercy.	At Mercy.
1:00	GU. SURGERY. Dr. Ockerblad. At 2:30.	SURGERY. § I. Dr. Orr.	PSYCHIATRY. Dr. Uhls.		MEDICINE 14. Dr. Crumrine. MEDICINE. Specialties. Dr. Milne.	
2:00	DISPENSARY. At 2:30.	DISPENSARY.	DISPENSARY.	GYNECOLOGY 7. Dr. Guffey. (Conference.)		
3:00	THERAPEUTICS. At 4. Dr. Clendenen.	NEUROLOGY. Dr. Skoog.	OTORHINOLARYNGOLOGY. Dr. Hall.		DISPENSARY.	

* Students scheduled for Mercy Hospital clinics and in attendance there are excused from all other classes.

§ Work in physical diagnosis to be arranged later.

FOURTH YEAR—SPRING SEMESTER, 1919-1920.

Hour.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
8:00	St. Margaret's § I : 8-12.	THERAPEUTICS. Dr. Clendening.	SURGERY 13. ROENTGENOLOGY. Dr. McDermott.	St. Margaret's § II : 8-12.	GENITO- URINARY SURGERY.	THERAPEUTICS. Dr. Clendening.
9:00	SURGERY 14. Dr. Gray. § II : 8-9. Specialties.	MEDICINE 13. Dr. Lynch.	PREVENTIVE MEDICINE Dr. Crumrine.	SURGERY 14. Dr. Gray. § II : 8-9. Specialties.	OBSTETRICS. 7-8. (Clinic.) § B and § C.	DERMATOLOGY. Dr. Sutton. †
10:00	§ II : 9-12. MEDICINE 10. Milne and Lynch.	§ I. MEDICINE 10. Dr. Bohan.	DISPENSARY.	§ I : 9-12. MEDICINE 10. Milne and Lynch.	OPHTHALMOLOGY. 3. (Dispensary.) Dr. Curran.	MEDICINE 10. MEDICAL CLINIC. Preparation. Dr. Bohan.
1:00	At Mercy. SURGERY 17.	MEDICAL JURISPRUDENCE. Dr. Kuhn.	PEDIATRICS. Dr. Walthall.		SURGERY 12. SURGERY. ANATOMY QUIZ. Dr. Sudler.	
2:00	PEDIATRICS 3. § A.	MEDICINE 13. Infectious Diseases. Dr. Davis.	PSYCHIATRY 2. Dr. Glasscock.	7-8. OBSTETRICS and GYNECOLOGY. (Conference.) Dr. Guffey.	DISPENSARY.	
3:00		NEUROLOGY 3. Dr. Skoog.	OTORHINOLARYN- GOLOGY. Dr. Hall.		CLINICAL PATHOLOGY. Conference. Dr. Wahl.	
4:00	DISPENSARY. § B and § C.					

DESCRIPTION OF COURSES.

ANATOMY.

Professors: COGHILL, TRACY.

Assistant Professor: SHEPPARD.

Assistant Instructors: BROWN, FOSTER.

Technician: STONE.

The department of anatomy includes gross anatomy (dissection), histology, embryology and neurology. The laboratories are located in the basement of the Museum of Natural History. They are thoroughly equipped with apparatus, specimens, models, charts and materials for both elementary and advanced instruction. Research is encouraged and good facilities for it are provided.

It is the aim of the department to present the gross and microscopic phases of anatomy in close correlation with each other, and in the light of embryological development. While the work is done under close supervision of instructors, independence of observation and thought on the part of the student is encouraged and expected.

A prerequisite of ten hours of biology is required for admission to the courses in anatomy.

COURSES OF INSTRUCTION.

HUMAN ANATOMY 1, 2, 3, and 4. The student makes a complete dissection of all structures of the human body, using atlases, textbooks, models and guides. While the dissections are observed closely by instructors, who give both oral and written examinations upon regions and parts as completed, the work is largely independent. Before receiving credit for his final dissection the student will be required to pass an oral examination on the anatomy of the whole body.

Coghill, Tracy, Sheppard and Assistants.

1.—DISSECTION OF THE UPPER EXTREMITY (90 hours). Two and one-half hours credit. Fee, \$5.

2.—DISSECTION OF THE LOWER EXTREMITY (90 hours). Two and one-half hours credit. Fee, \$5.

3.—DISSECTION OF THORAX AND ABDOMEN (126 hours). Three and one-half hours credit. Fee, \$10.

4.—DISSECTION OF HEAD AND NECK (126 hours). Three and one-half hours credit. Fee, \$10.

6.—TOPOGRAPHICAL ANATOMY. A laboratory course in human anatomy, including dissections, study of models, preparations and cross sections (54 hours). The practical phases are emphasized. Courses 1, 2, 3, and 4 are prerequisites. Required of second year students. First semester, one credit. Fee, \$5.

Sheppard and assistants.

7.—HISTOLOGY AND SPLANCHNOLOGY. A systematic study of the tissues and organs of the body, with introductory emphasis on the structure and function of the cell (198 hours). Five hours credit in college. Fee, \$7.50.

Tracy, Foster, Brown.

8.—EMBRYOLOGY AND EMBRYOGENY. A study particularly of the germ layers and the development of the organs of the body with the aid of serial sections, dissections and models (72 hours). Two hours credit. Fee, \$3.

Coghill, Foster, Brown.

9.—NEUROLOGY. A study of the central nervous system by means of dissections and microscopic methods, particularly with reference to the

better-known nerve centers and conduction paths (144 hours). Three hours credit. Fee, \$5. Coghill, Foster, Brown.

10.—ADVANCED ANATOMY. By appointment. This course is open, by appointment, to students who are prepared to work upon special anatomical subjects with a considerable degree of independence.

Coghill, Tracy, Sheppard.

TOTAL HOURS OF INSTRUCTION IN WORK REQUIRED, 900. Gross anatomy, 486; neurology, 144; histology, 198; embryology, 72.

ORGANIC CHEMISTRY.

Professor: DAINS.

61M.—ORGANIC CHEMISTRY. Five hours College credit. First semester, M. W. F., 1:30 to 2:30; laboratory, Tu. Th., 1:30 to 4:30. Lectures, recitations, and laboratory. A general introductory course in organic chemistry, covering the most important classes of organic compounds, with their preparation, properties, and uses. Required of students who have not completed it in the preliminary college work. Fifty-four hours lecture and recitation, 108 hours laboratory work. Dains.

BIOCHEMISTRY.

Professor: NELSON.

Assistant Professor: ———.

50.—BIOLOGICAL CHEMISTRY. Six hours credit. A survey of the field of biochemistry adapted to the needs of medical students. Lectures, conferences, laboratory work. Prerequisites, general and organic chemistry, 54 lectures, 162 hours laboratory work. Nelson and assistants.

(For the present this course extends throughout the year, three hours credit being allowed each semester. Beginning with the academic year 1920-'21, the entire course will be offered each semester.)

51.—ADVANCED BIOLOGICAL CHEMISTRY. Conferences and reports on selected topics. Two or more hours credit, throughout the year.

Nelson.

101.—RESEARCH IN BIOLOGICAL CHEMISTRY. Two or more hours credit, throughout the year.

Nelson.

103.—COLLOID CHEMISTRY. Two hours credit. First semester. A study of colloids and the colloidal state of matter. Special emphasis is laid on the application of colloid chemistry to problems in biochemistry.

Nelson.

PHYSIOLOGY.

Professor: STOLAND.

Assistant Professor: REED.

Demonstrator: ISENBERGER.

1. (College 70).—PHYSIOLOGY. Five hours credit. Second semester. Freshman year. Lectures and recitations, M. W. F., at 1:30; laboratory, Tu. Th., at 1:30 to 4:30. The physiology of blood, circulation, respiration, muscle and nerve. Required of first-year students.

Stoland, Reed, Isenberger.

2. (College 71).—PHYSIOLOGY. Five hours credit. First semester. Sophomore year. Lectures and recitations, M. W. F., at 8:30; laboratory, Tu. Th., at 8:30 to 11:30. The physiology of the central nervous system, the senses, the digestive tract, secretion, metabolism, excretion, heat regulation, internal secretion. A continuation of course 70. Required of second year students.

Stoland, Reed, Isenberger.

3. (College 63).—SPECIAL PROBLEMS IN PHYSIOLOGY. Five to seven hours credit. Both semesters. A course intended for students who wish to pursue special laboratory work or investigation. Stotland, Reed.

4. (Graduate 100).—ORIGINAL RESEARCH IN PHYSIOLOGY. Both semesters. Stotland.

PHARMACOLOGY.

Professor: STOLAND.

Assistant Professor: WELKER.

Laboratory Assistant: ANDERSON.

1.—PHARMACOLOGY (*At Rosedale*). Three hours credit. Sophomore year, second semester, three times a week. Lectures and recitations. Didactic instruction which deals primarily with the physiological actions of the more important drugs employed in therapeutics, their uses and methods of administration. Stotland, Welker.

2.—PHARMACOLOGY (*At Rosedale*). Two hours credit. Sophomore year, second semester, two afternoons a week. Laboratory instruction illustrating many of the underlying principles considered in course 1.

Stotland, Welker, Anderson.

3.—PHARMACOLOGY. Credit to be arranged, the amount depending upon the time given to the subject. A course in which students who have had courses 1 and 2 and are properly qualified to do advanced work in pharmacology are given an opportunity to do independent original work.

Stotland, Welker.

INTRODUCTORY PHARMACOLOGY, MATERIA MEDICA, AND TOXICOLOGY.

Professors: SAYRE, NELSON, BAILEY.

The courses offered in this department are especially designed to meet the requirements of medical students, special emphasis being given to the properties, action, and uses of the more important medical agents and poisons.

1.—INTRODUCTORY PHARMACOLOGY AND MATERIA MEDICA. (*At Lawrence*.) Two hours credit. First semester. This course embraces the study of weights, measures, processes used in the preparation of medicines, illustrated by exercises in the pharmaceutical laboratory; prescription writing; and physical properties and identification of crude drugs. Nelson.

2.—INTRODUCTORY PHARMACOLOGY AND MATERIA MEDICA. (*At Lawrence*.) Three hours credit. First semester. Classification, chemical and physical properties of drugs, therapeutical application, method of prescribing and dispensing, the action of organic and inorganic chemicals and their physiological relationships. Lectures and recitations. Required of second-year students. Must be preceded by course 1. Three hours, fall term, at 11:30. Sayre.

3.—INTRODUCTORY PHARMACOLOGY AND MATERIA MEDICA. (*At Rosedale*.) Two hours credit. Second semester. A continuation of course 2. Sayre.

4.—LABORATORY WORK IN PHARMACOLOGY. (*At Lawrence*.) Two or more hours credit. The facilities for pharmaceutical investigation of a practical character are made necessary by the intimate connection of the drug laboratories with the State Board of Health. Investigation of the physiological action of drugs and chemical analysis of active (toxic) principles. Either semester, by appointment. —, Sayre.

5.—TOXICOLOGY. One hour credit. First semester, Friday, at 9:30. Lectures on the sources, properties, methods for detection, and antidotes for poisons. Bailey.

TOTAL HOURS OF INSTRUCTION, 144. Introductory pharmacology, 54; materia medica, 72; toxicology, 18.

BACTERIOLOGY.

Professor: SHERWOOD.

Instructors: TREECE, DOWNS, McNAUGHT.

50.—MEDICAL BACTERIOLOGY AND PUBLIC HEALTH. Five hours credit. First semester, 1:30 to 3:30. Laboratory work with recitations and a course of lectures on the relation of bacteria to public-health problems. The laboratory work deals with the preparation of media, cultural methods, diagnostic tests, preparation of vaccines, and an intimate study of important pathogenic organisms. Sherwood, Treece, Irwin.

53.—BACTERIOLOGY OF FOODS. Five hours credit. Second semester, 8:30-10:30. Bacteriological examination of milk, oysters, meat, etc. Treece, McNaught.

57.—IMMUNITY. Five hours credit. Second semester, 10:30 to 12:30 and 1:30 to 3:30. Laboratory study of precipitins, agglutinins, bacteriolysins and complement fixation. Downs, McNaught.

61.—SPECIAL PROBLEMS IN BACTERIOLOGY. Two to ten hours credit. Either semester, by appointment. Special work along some definite line with a view to obtaining familiarity with a particular kind of laboratory procedure. Sherwood.

PREVENTIVE MEDICINE.

Professor: CRUMBINE.

Associate Professors: HASKINS, TUTTLE.

For a number of years the relations existing between the University of Kansas and the Kansas State Board of Health have been very close and intimate. The water, food, and drug laboratories of the Board are at the University, the work of analysis being done by the University men. The engineers of the State Board of Health are the engineers of the University. Much of the research and investigation undertaken by the State Board of Health has been through the coöperation of the Faculty of the University.

It is becoming more and more apparent that preventative medicine is to have an increasingly important place in the education and culture of the future physician.

The close relations between the State Board of Health and the University of Kansas have made it easy to bring about the more or less unique relationship that exists between the School of Medicine of the University and the State Board of Health, which, in effect is the union of the curative and preventive agencies of the state.

Realizing the importance of a fundamental understanding of the value of preventive medicine, not only to practitioners of medicine, but in training public-health officers, the School of Medicine has created a separate Department of Preventive Medicine, the head of which is the secretary of the State Board of Health.

1.—PUBLIC HEALTH. One hour credit. Second year, second semester, Wednesday at 11.

(a) Sanitary engineering, water supplies, sewage collection, purification and disposal, sanitary architecture, plumbing, ventilation, public buildings, schools, hospitals, dwellings, etc.

(b) Special sanitation of public institutions, of transportation, school hygiene, rural, occupational, and other special sanitation.

2.—PUBLIC HEALTH. One hour credit. Fourth year, first semester, Wednesday at 9.

(a) Introductory, historical, definitions and principles, relations of hygiene to other sciences and professions.

(b) Vital statistics, economics of disease, eugenics, other social aspects and problems.

(c) Immunity, race questions, infection.

3.—PREVENTIVE MEDICINE. One hour credit. Fourth year, second semester, Wednesday at 9.

(a) The study of environment, air, water (including ice and mineral waters), milk, dairy hygiene and milk products, other foods, soil, sewage.

(b) Infectious diseases and their epidemiology (including venereal diseases), notifiable diseases.

(c) Vaccines and protective inoculations.

(d) Disinfection and disinfectants.

(e) Animal parasites.

(f) Insects and disease, the control of diseases through the control of their disseminators.

(g) Diseases communicated to man by the lower animals.

(h) Legal and administrative devices for the control of diseases, the principles of sanitary law illustrated by the sanitary laws of Kansas, quarantine and isolation, health officers and boards (federal, state and local), municipal sanitation, pure foods and drugs, hygienic laboratories, the education of the public.

PATHOLOGY AND BACTERIOLOGY.

Professor: WAHL.

Assistant Professor: BLACK.

Technical Assistant: MCKINLAY.

1.—GENERAL AND SPECIAL PATHOLOGY. (*At Rosedale.*) Professor Wahl. Six hours credit. Second semester, twelve hours per week. M. Tu. Th., 8 to 11; F., 9 to 12. Explanatory lectures on pathological processes occupy three hours a week and are supplemented with laboratory work in gross morbid anatomy, pathological histology and experimental pathology. Quiz conferences, lantern demonstrations, microscopic projection and written tests are given. The course also included practical work in autopsy and histological technic. Throughout the course every effort is made to correlate the work with that of the clinic laying proper emphasis upon the functional changes as well as the gross morbid and histopathologic alterations. During the course two hours a week are allotted to gross morbid anatomy utilizing both fresh and museum material as well as that obtained in experimental pathology. Required of all second year students.

2.—EXPERIMENTAL PATHOLOGY. (*At Rosedale.*) Professor Wahl. One hour credit. Supplementary to course 1. Students are assigned some special problems in experimental pathology and demonstrate the results of their experiments to the class. Required of second year students.

3.—GROSS MORBID ANATOMY AND AUTOPSY TECHNIC. (*At Rosedale.*) Professor Wahl. W., 2 to 4. Both semesters. Two hours credit. Students are assigned to perform autopsies under supervision. All fresh gross material obtained during the week is discussed with the class once a week, with emphasis made on the correlation with the clinical history. Required of third year students.

4.—PATHOLOGICAL PHYSIOLOGY. (*At Rosedale.*) Professor Wahl. Two hours credit. This course takes up the disturbances of function occurring in disease with consideration of the anatomical changes produced. First semester. Required of third year students.

5.—CHEMICAL PATHOLOGY. (*At Rosedale.*) Professor Wahl. Second semester. Two hours credit. This course takes up fundamental chemical changes underlying pathological processes. Required of third year students.

6.—CLINICAL PATHOLOGY. Elementary course. (*At Rosedale*) Professor Black. Two hours credit. W., 10 to 12. Students are trained in routine blood, urine and gastric analysis, and in the examination of throat secretions, cerebrospinal fluids and pathological exudates. Second semester. Required of second year students.

7.—CLINICAL PATHOLOGY. Advanced course. (*At Rosedale.*) Professor Black. Three hours credit. F., 9 to 12. Modern methods of microscopical, bacteriological, serological and chemical diagnosis and technic are given. Constant use of clinical material from the hospital is utilized and emphasis made upon the clinical significance of the results obtained. Parasitology and its bearing on clinical pathology is considered in the various divisions of the course. Demonstrations of the technic employed in removing fluids from the body cavities and spinal canal is demonstrated. The practical application of immunology is also given.

8.—CLINICAL PATHOLOGY. Practical. (*At Rosedale.*) Professor Black. One hour credit. Two students are assigned each week to perform a part of the routine clinical laboratory work of the hospital under supervision.

9.—ADVANCED BACTERIOLOGY AND PATHOLOGY. (*At Rosedale.*) Professor Wahl. Open to advanced students who have had sufficient preparation. Experimental work and research in all branches of bacteriology, pathology and immunology, arranged to suit the needs of individual students.

10.—CLINICAL-PATHOLOGICAL CONFERENCE. (*At Rosedale.*) Professor Wahl. One hour a week. Open to fourth year students. Both semesters. A conference is held between the clinical and pathology departments with a discussion of pathological material obtained during the week.

TOTAL HOURS OF REQUIRED WORK, 432. General and special pathology 208, gross morbid anatomy 64, physiological pathology 32, chemical pathology 32, clinical pathology 96.

MEDICINE.

Professors: MILNE, BOHAN, MURPHY, WOLF, GLASSCOCK, UHLS,
SKOOG, MCBRIDE, SUTTON.

Associate Professors: TRIMBLE, KUHN.

Assistant Professor: DENNIE.

Instructors: LYNCH, CLENDENNING, MYERS, COWHERD,
BOUGHNAU.

Clinical Assistants: WALTHALL, BRADFORD, HUNT, DAVIS,
HOWARD.

The course in medicine begins in the second half of the second year and leads up to the individual study of clinical cases in the fourth year.

SECOND YEAR.

1.—PHYSICAL DIAGNOSIS I. Two hours credit. Second semester, W. F., 8 to 9. The course consists of demonstrations and practical exercises illustrating the simpler methods of physical examination of the normal organs, with the exposition of the physical laws involved. It includes also instruction in the recording of clinical cases. Demonstrations are also conducted in the dispensary and in the hospital for the practical study of physical signs of diseases conditions. Boughnou.

2.—LABORATORY DIAGNOSIS. Two hours credit. Second semester, W., 9 to 11. In this class students are trained in the methods of examining blood, sputum, and throat secretions, gastric contents, cerebrospinal fluids, urine, feces, pathological exudates, etc. Black.

THIRD YEAR.

4.—SYSTEMATIC MEDICINE. Two hours credit. Both semesters, Tu., 9 to 10. A systematic course of lectures is given on the diseases of the cardiovascular and respiratory systems, the peritoneum, liver, kidney,

adrenals, thyroid, pancreas, and disorders of metabolism. (Fourth year.) Milne.

5.—CLINICAL MEDICINE. Two hours credit. Both semesters, M. Th., 10 to 12. Ward classes are held twice a week, in which cases are demonstrated, as far as possible, to illustrate the subjects of the lecture course at that time. Murphy, Trimble.

Ward Work. Students are assigned to cases for individual study, and are required to prepare records of these cases and to note the progress and treatment of the disease.

6.—RECITATIONS. In this course students are quizzed on lessons assigned in Osler's Practice of Medicine.

M. Th., 8 to 9, both semesters; two hours credit.

Myers.

W. F., 3 to 4, both semesters; two hours credit.

Krall.

Sat., 9 to 10, both semesters; one hour credit.

7.—CLINICAL BACTERIOLOGY, SEROLOGY, AND HEMATOLOGY. Two hours credit. First semester, F., 9 to 12. In this course instruction is given in agglutinative and other serum tests, including the Widal and Wassermann reactions, the bacteriology of pathological exudates, blood cultures, vaccine therapy and diseases of the blood. Black.

8.—DISEASES OF THE STOMACH AND INTESTINES. One hour credit. Second semester, 9 to 10. A systematic lecture course on diseases of the stomach and intestines. Wolf.

9.—OUT-PATIENT WORK. Assignments are also made to the different dispensary rooms. Each case is allotted to a student, whose duty is to prepare the history and to examine the patient, under the direction of the physician in charge, who advises the treatment to be carried out in each case.

FOURTH YEAR.

10.—CLINICAL MEDICINE. Eight hours credit. Both semesters, M. Th. at St. Margaret's Hospital, Tu. at Bell Hospital, 10 to 12. Clinics are given at the bedside and in the dispensary on selected cases. Each of these cases has previously been studied by one student, who is responsible for the history of the case and for a special knowledge of this type of disease. Milne, Bohan, Lynch.

11.—RÖENTGENOLOGY AS APPLIED TO MEDICINE. M., 9 a. m. Dively.

12.—DIETETICS. One hour credit. First semester, F., 9 to 10. A lecture course on the dietetic treatment of disease. Wolf.

13.—INFECTIOUS DISEASES. Second semester, Tu., 2 p. m. Davis.

14.—THERAPEUTICS. Both semesters, 8 a. m.

Clendenning.

15.—MEDICAL DIAGNOSIS. Both semesters, M. W., 11 a. m. Milne.

PSYCHIATRY AND NEUROLOGY.

THIRD AND FOURTH YEARS.

1.—FUNCTIONAL AND ORGANIC DISEASES OF THE NERVOUS SYSTEM. One hour credit. First semester, Sat., at 11. Lectures. Required of third-year students. Kuhn.

2.—PSYCHIATRY. One hour credit. F., at 1. Lectures covering the following subjects are given: History of insanity, forms of insanity, care and treatment of insanity in hospitals, care and treatment of insanity in general practice, state care of insane, and the relation of heredity to insanity. Both terms. Fourth year. Glasscock, Uhls.

3.—CLINICAL NEUROLOGY AND NEUROPATHOLOGY. Two hours credit. Both semesters, W., 2 to 4. This course includes practical exercises and demonstrations on the pathology of nervous diseases. Clinical demonstrations of neurological cases are also conducted, and students are as-

signed to the practical study of the nervous cases in hospital to be reported on at the class meeting. Skoog.

4.—CLINICAL NEUROLOGY. One hour credit. Th., at 9. Demonstrations of cases at St. Margaret's Hospital. Required of Seniors. Skoog.

DERMATOLOGY.

THIRD YEAR AND FOURTH YEAR.

1.—INTRODUCTORY COURSE. One hour credit. First semester, Tu., at 8. Lectures and recitations. The anatomy and physiology of the skin, together with symptomatology, pathology, and clinical manifestations of the commoner skin diseases. Required of third-year students, spring term. Dennie.

FOURTH YEAR.

2.—CLINICAL DERMATOLOGY. One hour credit. Both semesters, Sat. a.m. Lectures, and demonstrations of the various skin diseases, at the Bell Memorial Hospital. Fourth year. Sutton.

3.—DISPENSARY CLINICS. M. W. F. Dennie.

PEDIATRICS.

THIRD YEAR.

1.—PEDIATRICS. One hour credit. Third year, first semester, Th., at 1. Lectures and recitations on infant feeding. Diseases of malnutrition and gastro-intestinal disturbances. Cowherd.

2.—PEDIATRICS. One hour credit. Second semester, M. W. Sat., at 1. Students are shown normal children as well as abnormal from birth to fifteen years of age. Special emphasis is laid on normal and abnormal physical findings. Sections limited to four students. This work is given in the wards of Children's Mercy Hospital. Cowherd.

FOURTH YEAR.

3.—PEDIATRICS. One hour credit. First semester, M. W. Sat. Continuation of course 2. Cases are assigned to students for examination and study. Differential diagnosis and treatment are particularly emphasized. Methods of infant feeding are taken up in detail. Children's Mercy Hospital. Sections limited to four students. Cowherd.

SURGERY.

Professors: SUDLER, GRAY, CURRAN, HERTZLER.

Associate Professors: CUNNINGHAM, ORR, ROBERTS, FRANCISCO.

Assistant Professors: HALL, OCKERBLAD.

Instructors: NESSELRODE, MCCARTY.

Assistant: RUMSEY.

Instruction in the principles of the various branches of surgery is given by means of lectures, recitations, and assigned subjects. Clinical instruction is given in the dispensary, in the Bell Memorial Hospital, and in St. Margaret's Hospital.

SECOND YEAR.

1.—ANESTHETICS. One hour for nine weeks during the spring term. Lectures and assigned reading. Required of second-year students. Saturday, at 11. Cunningham.

2.—MINOR SURGERY. Two hours credit. Second semester. Instruction in bandaging and dressings, at the dispensary. Required of second-year students. S., at 9. Orr.

THIRD YEAR.

3.—GENERAL SURGERY. Two hours credit. First semester, M. and Th., at 11. Lectures, recitations, conferences, and assigned work. An introduction to the principles underlying surgical procedure. Required of third-year students. Sudler.

4.—GENERAL SURGERY. Two hours credit. Second semester, Tu. and Th., at 1. A continuation of course 1. Required of third-year students. Sudler.

5.—FRACTURES AND DISLOCATIONS. Two hours credit. First semester, Tu. Th., at 9. Lectures and recitations. Required of third-year students. Orr.

7.—GENITOURINARY SURGERY. One hour credit. Both semesters, F., at 9. Lectures and recitations. Required of third-year students. Ockerblad.

8.—SURGICAL PATHOLOGY. Two hours credit. Second semester, Tu. and F., at 2. Required of third-year students. Hertzler.

THIRD AND FOURTH YEARS.

9.—CLINICAL SURGERY. At the Bell Memorial Hospital. Two hours credit. Spring semester, W., 9 to 12. Required of third-year students. Sudler.

FOURTH YEAR.

11.—OPERATIVE SURGERY. Two hours credit. Second semester, W., at 10. Animal experimentation and work on the cadaver. Required of fourth-year students. Hertzler.

12.—SURGICAL CONFERENCES. One hour credit. Second semester. Papers on assigned subjects. Required of fourth-year students. Sudler.

13.—ELECTROTHERAPEUTICS. One hour credit. Both semesters, F., at 3, and Sat., at 1. Lectures and demonstrations. Required of fourth-year students. McDermott.

14.—CLINICAL SURGERY. Three hours credit. Both semesters, M. Tu. Th., 8 to 12. Assigned in sections. At St. Margaret's Hospital. Required of fourth-year students. Gray, Nesselrode.

15.—ORTHOPEDIC SURGERY. One hour credit. Both semesters, Sat., at 9. Lectures and recitations. Required of fourth-year students. Francisco.

16.—CLINICAL SURGERY. One hour credit. First semester. Instruction in the Bell Memorial Hospital. Sudler.

17.—ORTHOPEDIC SURGERY. One hour credit. Both semesters, M. W. Sat., at 1. Instruction in wards at Mercy Hospital, in sections of four. Francisco.

OTORHINOLARYNGOLOGY.

THIRD YEAR.

1.—RHINOLARYNGOLOGY. One hour credit. Second semester, Th., at 2. The course consists of a review of the anatomy and physiology of the parts, a drill in the use of instruments for diagnosis and in the methods of examination illustrated by demonstrations on patients; also, of lectures, quizzes, and the examination of microscopical specimens. Required of third-year students. Hall, Roberts, McCarty.

2.—OTOLOGY. One hour credit. Second semester, M. S., at 11. The plan of instruction pursued in the study of diseases of the ear is the same as that in the department of nose and throat. Required of third-year students. Hall, Roberts, McCarty.

FOURTH YEAR.

3.—RHINOLARYNGOLOGY. One hour credit. First semester, Th., at 2. This course is a continuation of course 1. Here also the students are taught in groups. The subject matter of this course consists of a study of the deformities and diseases of the nose and throat and their treatment. Required of fourth-year students. Hall, Roberts, McCarty.

4.—CLINICAL WORK. M. Tu. W. Th. Sat. Clinical instruction in diseases of the ear, nose, and throat is given in the dispensary and by hospital clinics by means of direct examination of patients under the supervision of instructors, who personally teach each student proper methods of examination and the correct interpretation of his observations. Hall, Roberts, McCarty.

OPHTHALMOLOGY.

1.—PHYSIOLOGICAL OPTICS. One hour credit. Instruction is given second-year students in physiological optics; vision tests, color tests, the taking of the field of vision, etc. Optical boxes, artificial eyes, ophthalmoscopes and suitable apparatus are provided for all physiological work and study. The course consists of laboratory work and demonstrations under the professor of physiology in the regular course in physiology. Curran.

2.—LECTURES, DEMONSTRATIONS, AND CLINICAL WORK IN DISPENSARY. Two hours credit. Both semesters. The course covers objective and subjective examination of the patient, functional testing, diseases, and injuries, medical and surgical ophthalmology, and the relation of the eye to general diseases. Required of third-year students. Curran.

3.—PRACTICAL WORK. Fourth year. One hour credit. Both semesters. Clinics are given in the Bell Memorial Hospital. The students are divided into small sections and each individual has the opportunity of closely inspecting the patients suffering from external diseases of the eye, of making the commoner applications used in the treatment, of assisting in the operating room, of studying refractive errors, functional testing, etc. Each student is required to become proficient in refraction. Curran.

TOTAL HOURS OF INSTRUCTION 838. Anesthetics 9, Minor surgery 36, General surgery 36, Regional surgery 54, Fractures and dislocations 36, Orthopedic surgery 18, Genito-urinary surgery 36, Surgical pathology 54, Operative surgery 144, Surgical diagnosis 36, Surgical conferences 18, Rectal surgery 9, Clinical surgery 144, Amphitheater clinics 144, Ear, nose, and throat 16, Eye 16, Ear, nose, throat, and eye clinics 32.

OBSTETRICS AND GYNECOLOGY.

Professor: GUFFEY.

Associate Professor: IRLAND.

Assistant Professor: VANORDEN.

Instructors: BLACK, SCHWEIN, SINGLETON.

Instruction in the principles of obstetrics and gynecology is given by means of lectures, recitations, and demonstrations. Clinical instruction is given in the dispensary and wards of the Bell Memorial hospital. Further practical instruction in obstetrics is obtained through the outpatient department.

SECOND YEAR.

1.—PHYSIOLOGICAL OBSTETRICS. Two hours credit. Second semester, M. W., at 1. Lectures and recitations. Required of second-year students. Vanorden.

THIRD YEAR.

2.—PATHOLOGICAL OBSTETRICS. Two hours credit. Fall term, W. S., at 9. Lectures, recitations, and demonstrations. Required of third-year students. Guffey.

3.—DISEASES OF THE FEMALE GENITAL TRACT. Two hours credit. Second semester, M. Th., at 9. Lectures, recitations, and demonstrations of illustrative pathological material. Required of third-year students. Ireland.

4.—OPERATIVE OBSTETRICS. One hour credit. Second semester, F., at 1. Recitations, demonstrations, and practice on the manikin by the student. Required of third-year students. Vanorden.

5.—OBSTETRICAL AND GYNECOLOGICAL PATHOLOGY. Two hours credit. First semester, M., 2 to 5. A course devoted to the study of gross and microscopic pathology with special reference to specimens removed from patients operated upon before the class. Required of fourth-year students. Black.

THIRD AND FOURTH YEARS.

6.—DISPENSARY. One hour credit. A minimum of eighteen hours is required. A course devoted chiefly to history taking, the technique of examination, and the treatment of ambulatory patients. Students assigned in groups. Guffey, Black, Schwein, Singleton.

7.—PRACTICAL WORK IN OBSTETRICS. The conduct of two births in a hospital and eight on the out-patient service is required before graduation. Assigned work. Black, Singleton.

FOURTH YEAR.

8.—CLINICAL CONFERENCE IN OBSTETRICS AND GYNECOLOGY. Two hours credit. Both semesters, Th., 3 to 5. An exhaustive consideration of all cases in the Bell Hospital. Also, reports and discussion of case histories and important abnormalities met with in the out-patient service. Required in fourth-year students. Guffey.

9.—CLINICS IN OBSTETRICS AND GYNECOLOGY. Two hours credit. Both semesters, F., 9 to 12. This course logically follows course 6, as the same patients are further examined, given treatment, or operated upon. Students present histories, assist with operations, and make full reports of pathological findings, operative technique, or treatment. Required of fourth-year students. Guffey.

TOTAL HOURS OF INSTRUCTION, 272. Gynecology: didactic 32, clinical 77, laboratory 16, total 115. Obstetrics: didactic 86, clinical 77, laboratory 16; total 179. Total didactic 118, clinical 154, laboratory 32.

TRAINING SCHOOL FOR NURSES.

FACULTY.

FRANK STRONG, Ph. D., President.

M. T. SUDLER, M. D. Associate Dean, School of Medicine.

S. MILO HINCH, R. N., Superintendent of Bell Memorial Hospital, Supervisor of Nurses.

WILLIAM KIRK TRIMBLE, M. D., Lecturer on Pathology.

DON CARLOS GUFFEY, A. M., M. D., Instructor in Medicine and Obstetrics.

This School was established in July, 1906, with the opening of the Bell Memorial Hospital. It is a division of the School of Medicine of the University of Kansas, and subject to the same governing bodies.

EQUIPMENT.

The present hospital building contains sixty-five beds. The hospital receives all classes of patients except those suffering from dangerous contagious diseases or mental troubles, and shows a great variety of work. Also, since it is a teaching hospital, the character of the work shown is more instructive than that shown ordinarily in private hospitals.

The close proximity of the laboratory, library, and other equipment of the School of Medicine affords great advantage in the way of medical information and instruction.

ADMISSION.

Women of good character between the ages of twenty and thirty are eligible for admission. Those with a high-school education are given preference. Those who are accepted are accepted with the understanding that they must spend a probationary period of three months in the school, during which time they will receive board, laundry, and lodging, but no other compensation, and that they agree to remain in the school, unless dismissed, the full term of three years.

The didactic instruction begins October 1 and ends June 1 of each year, but students are admitted at any time when there is a vacancy.

Any young woman who wishes to enter the school must make formal application to the supervisor of nurses of the Bell Memorial Hospital, Rosedale. With this application should be sent letters showing what educational advantages she has enjoyed, testifying to her good moral character, and to her good health. These letters should preferably be from her instructor and her medical attendant.

ADVANCED STANDING. Candidates for advanced standing must satisfy the requirements for admission and also show that they have had the work already done by the class to which they wish admission. An official statement of character and ability from the training school giving the previous work will be required. There will be required of them, as of beginners, a probationary period, and they will be required to pass an examination on the work for which they seek credit.

COURSE OF STUDY.

The course is for three years. It is customary to grant a vacation of three weeks each year.

The instruction consists of two parts—the practical and the theoretical. The practical work consists of sixty hours' work each week. The theoretical instruction requires four hours of lectures or recitations each

week, together with the necessary laboratory work in dietetics, etc. This theoretical instruction includes the necessary work in anatomy, physiology, hygiene, medicine, pediatrics, obstetrics, etc.

HOURS OF INSTRUCTION.

	<i>Juniors.</i>	<i>Intermediate.</i>	<i>Seniors.</i>
Hygiene and nursing ethics.....	4	..	4
Theory and demonstration—nursing.....	32	32	..
Anatomy and physiology.....	32	..	..
Materia medica	20	..	..
Ward solutions	2	..	..
Urinalysis .....	..	6	..
Bacteriology	16	..	..
Laboratory technic	6	..	..
Obstetrics and Gynecology.....	..	32	..
Chemistry	10	..	..
Pediatrics .....	..	15	..
Surgery .....	..	8	..
Bandaging .....	..	4	..
Dietetics	40	..	..
Nervous diseases .....	..	..	6
Ear, nose, and throat.....	..	..	5
Eye .....	..	..	5
Massage .....	..	..	15
	162	97	35

PROMOTION.

Students are advanced upon the obtaining of satisfactory grades in their practical work and upon their passing satisfactory examinations in their theoretical work. Reports on the practical work are made monthly and those on the theoretical work semiannually.

GRADUATION.

At the close of a successful course of three years the students are granted a diploma under the seal of the University of Kansas. Before they receive such a diploma they must make up lost time and demerits charged against them during the course.

EXPENSES.

Each nurse must furnish her own uniform, books and instruments.* To cover such professional expenses each member of the training school is allowed \$7 a month. From this compensation is deducted, of course, the cost of material unnecessarily broken or lost. Since the board, lodging, and necessary laundry work are furnished free, the pupil nurse secures her training at little or no expenditure of money.

* These instruments consist of 1 hypodermic syringe (all glass), 1 pair bandage scissors, 1 pair of small scissors, 1 probe, 2 thumb forceps.

SECTION IX.

School of Education.

(333)

FACULTY.

FRANK STRONG, Ph. D., President.
FREDERICK J. KELLY, Ph. D., Dean and Professor of Education.
ARVIN OLIN, A. M., Professor of Education.
ARTHUR T. WALKER, Ph. D., Professor of Latin Language and Literature.
WILLIAM H. JOHNSON, A. M., Professor of Education.
ELMER F. ENGEL, A. M., Professor of German.
ELIZABETH C. SPRAGUE, Professor of Home Economics.
WILLIAM B. DOWNING, Professor of Public School Music.
RAYMOND A. SCHWEGLER, A. M., Professor of Education.
RAYMOND A. KENT, Ph. D., Professor of Education.
WALTER R. SMITH, Ph. D., Professor of Sociology.
CHESTER A. BUCKNER, Ph. D., Professor of Education and Director of Bureau of School Service.
HAROLD G. INGHAM, A. B., Director University Extension Division.
HANNAH OLIVER, A. M., Associate Professor of Latin.
ELISE NEUEN SCHWANDER, Ph. D., Associate Professor of Romance Languages.
ULYSSES G. MITCHELL, Ph. D., Associate Professor of Mathematics.
HUBERT W. NUTT, A. M., Associate Professor of Education.
RALPH E. CARTER, A. M., Associate Professor of Education.
GEORGE W. STRATTON, Ph. D., Associate Professor of Chemistry.
WILLIAM L. EIKENBERRY, B. S., Associate Professor of the Teaching of Biological Sciences.
JOHN R. FRAZIER, Associate Professor of Drawing and Painting.
FRANK E. MELVIN, Ph. D., Assistant Professor of European History.
MAY GARDNER, A. B., Assistant Professor of Hispanic Languages.
ELIZABETH FAULKNER, A. M., Assistant Professor of the Teaching of English.
CHARLES H. WATSON, A. B., Assistant Professor of the Teaching of Physical Sciences.
THOMAS J. SMART, A. M., Assistant Professor of Education in Extension Division.
HAZEL H. PRATT, A. B., Instructor in Physical Education.
JESSIE ALICE CLINE, A. B., Instructor in Home Economics.

ADMINISTRATIVE COMMITTEE.

F. J. KELLY, *Chairman.*

A. T. WALKER.

U. G. MITCHELL.

W. H. JOHNSON.

ELIZABETH SPRAGUE.

R. A. SCHWEGLER.

H. W. NUTT.

F. E. MELVIN.

THE SCHOOL OF EDUCATION.

RELATION WITH THE COLLEGE OF LIBERAL ARTS AND SCIENCES.

The School of Education works in intimate relationship with the College of Liberal Arts and Sciences. The academic courses which enter into the preparation of teachers and school administrators are offered by the College, while the professional courses in education are offered by the School of Education.

RELATION WITH THE KANSAS STATE NORMAL SCHOOLS.

Students with advanced standing from any of the Kansas State Normal Schools entering the School of Education as candidates for the degree of Bachelor of Science in Education will be given credit, hour for hour, for courses in the Normal Schools approved by the joint committee of the Normal Schools and the University. What these courses are may be learned by inquiry either from the Normal School concerned or from the University. Such students will, of course, complete the specific requirements for the degree.

Graduates of the Kansas State Normal Schools whose undergraduate work has been made up of approved courses are admitted without deficiency to the Graduate School of the University as candidates for the degree of Master of Science in Education.

THREE CLASSES OF STUDENTS IN THE SCHOOL OF EDUCATION.

Three classes of students enroll in the School of Education:

1. *Candidates for the degree of B. S. in Education.*

These students are those seeking the greatest specialization for the work of public school superintendent, principal or teacher. For them a highly specialized curriculum is mapped out below, designed to prepare specifically for the various sorts of positions in Kansas schools. Students pursuing this curriculum enroll in the School of Education for all their work at the beginning of the Junior year. During the Freshman and Sophomore years, while they are enrolled in the College, students should select their courses under the advice of a member of the faculty of the College who is also a member of the faculty of the School of Education, and has been designated for that purpose. The table where such advisers are found at enrollment time is indicated by a placard having on it, "Prospective Teachers."

2. *Candidates for the University Teachers' Diploma.*

These students are candidates for the degree of A. B. from the College or some degree from the Graduate School. The curriculum for the University teachers' diploma, given below in detail, calls for as much specialization for public school teaching as is consistent with the other requirements of the College. Students pursuing this curriculum enroll in the College throughout their course, but enroll in the School of Education also for their courses in education. They should be advised in selecting their courses while in the Freshman and Sophomore years by the member of the faculty of the College designated for that purpose.

3. *Candidates for State Teachers' Certificates.*

These students are (a) College students who desire the least amount of specialization for teaching but wish to satisfy the minimum requirements for a teachers' certificate set by the State Board of Education; and (b) Fine Arts students who are satisfying the professional requirements in their public-school music and public-school art curriculums.

CURRICULUMS IN THE SCHOOL OF EDUCATION.

1. CURRICULUMS LEADING TO THE DEGREE OF B. S. IN EDUCATION.

Option 1.—For School Superintendents and Principals.

- I. GENERAL TRAINING: (Enough work in high school and college together in the following departments to make a total of the given number of college credit hours. The high-school work is to be figured at the rate of five college credit hours per high-school unit.)

	<i>Credit hours.</i>
English (at least 5 hours of College English)	20
Foreign Languages	15
Mathematics	10
Physical Sciences (from 2 different sciences)	10
Biological Sciences (from 2 different sciences)	10
History and Political Science	10

II. SELECTED COLLEGE COURSES:

For Freshmen and Sophomores:

Elements of Economics	5
Elements of Sociology	3
American Government	5
Extempore Speaking	4
Philosophy and Psychology (to include general psychology, 3 hours)	5

For Juniors and Seniors:

Public Finance, or Elements of Accounting	3
From the following:	
Social Surveys, Rural Sociology, Municipal Sociology, So- cial Pathology	4
Elementary Law, or Municipal Government	3

III. PROFESSIONAL COURSES:

Elementary Education	3
Methods of Teaching	3
Fundamentals of Education	8
Supervision of Instruction, or City School Administration ...	2
Educational Measurements	2
The Abnormal Child	3
School Hygiene	3
Electives in Education	6

IV. A MINOR

To be selected from the following:

- A. ENGLISH (English language and literature, public speaking, and journalism): At least 12 hours in the department of English language and literature.
- B. FOREIGN LANGUAGES (Ancient languages, Germanic languages, Hispanic languages, Romance languages): 20 hours in any one language.

- C. MATHEMATICS (mathematics): 15 hours in mathematics in addition to two units of high-school work in mathematics. The remainder in the following departments: Mathematics, physics, chemistry, geology.
- D. BIOLOGICAL SCIENCES (bacteriology, botany, entomology, physiology, zoology): At least 12 hours in some one department and not more than 15 hours in any department.
- E. PHYSICAL SCIENCES (chemistry, geology and mineralogy, physics and astronomy): At least 12 hours in some one department and not more than 15 hours in any department.
- F. SOCIAL SCIENCES (economics, history, political science, sociology): At least 12 hours in one department. Not more than 15 hours in either economics, political science, or sociology. 20 hours may be taken in the history department.
- G. PHILOSOPHY AND PSYCHOLOGY (philosophy, psychology): At least 10 hours and not more than 15 hours in philosophy and psychology. The remainder in economics, political science and sociology, or in zoology, anatomy, and physical education.
- H. HOME ECONOMICS (home economics): 20 hours in home economics.
- I. PHYSICAL TRAINING AND HEALTH (physical education and athletics, physiology, bacteriology, anatomy): Physiology, 5 hours; bacteriology, 5 hours; physical education and athletics, 10 hours.
- J. FINE ARTS (music, drawing and design): 20 hours in one department. Not more than 5 hours in private lessons for development of technical skill.

Option II.—For Teachers.

- I. GENERAL TRAINING: (Enough work in the high school and college together in the following departments to make a total of the given number of college credit hours. The high-school work is to be figured at the rate of five college credit hours per high-school unit.)

	<i>Credit hours.</i>
English (at least 5 hours of College English)	20
Foreign Languages	20
Mathematics	10
Physical Sciences (from 2 different sciences)	10
Biological Sciences (from 2 different sciences)	10
History and Political Science	10

II. SELECTED COLLEGE COURSES:

For Freshmen and Sophomores:

Elements of Economics	5
Elements of Sociology	3
Extempore Speaking	2
Philosophy and Psychology (to include general psychology, 3 hours)	5

For Juniors and Seniors:

Social Surveys, or Rural Sociology, or Municipal Sociology, or Social Pathology	2
---	---

III. PROFESSIONAL COURSES:

Either a major of 30 hours in Education or a minor of 25 hours in Education, to include the following courses:

Fundamentals of Education	8
A Teachers' Course	2 or 3
Senior Teaching	2 or 4
Electives approved by the head of the department of education.	

IV. A MAJOR (if a minor in Education is used)..... 30
or

A MINOR (if a major in Education is used)..... 25

To be selected from the following:

A. ENGLISH (English language and literature, public speaking, and journalism):

Major.—At least 20 hours in the department of English language and literature.

Minor.—At least 15 hours in the department of English language and literature.

B. FOREIGN LANGUAGES (Ancient languages, Germanic languages, Hispanic languages, Romance languages):

Major.—30 hours in some one department, but may be reduced to a minimum of 20 hours by high-school work in the given department, counted at the rate of 5 hours for each high-school unit. The remainder in any other one language.

Minor.—25 hours in some one department, but may be reduced to a minimum of 20 hours by high-school work in the given department, counted at the rate of five hours for each high-school unit. The remainder in any other one language.

C. MATHEMATICS (mathematics):

Major.—20 hours in mathematics in addition to two units of high-school work in mathematics. The remainder in the following departments: Mathematics, physics, chemistry, geology.

Minor.—15 hours in mathematics in addition to two units of high-school work in mathematics. The remainder in the following departments: Mathematics, physics, chemistry, geology.

D. BIOLOGICAL SCIENCES (bacteriology, botany, entomology, physiology, zoölogy):

Major.—At least 12 hours in some one department and not more than 15 hours in any department.

Minor.—At least 12 hours in some one department and not more than 15 hours in any department.

E. PHYSICAL SCIENCES (chemistry, geology and mineralogy, physics and astronomy):

Major.—At least 12 hours in some one department and not more than 15 hours in any department.

Minor.—At least 12 hours in some one department and not more than 15 hours in any department.

F. SOCIAL SCIENCES (economics, history, political science, sociology):

Major.—At least 12 hours in one department. Not more than 15 hours in either economics, political science, or sociology. 30 hours may be taken in the history department.

Minor.—At least 12 hours in one department. Not more than 15 hours in either economics, political science, or sociology. 25 hours may be taken in the history department.

G. PHILOSOPHY AND PSYCHOLOGY (philosophy, psychology):

Major.—At least 12 hours and not more than 15 hours in philosophy and psychology. The remainder in economics, political science and sociology.

Minor.—At least 12 hours and not more than 15 hours in philosophy and psychology. The remainder in economics, political science and sociology.

H. HOME ECONOMICS (home economics):

Major.—30 hours in the department, but may be reduced to a minimum of 20 hours by high-school work in home economics counted at the rate of 5 hours for each high-school unit. The remainder in botany, chemistry, design, and physiology.

Minor.—25 hours in the department but may be reduced to a minimum of 20 hours by high-school work in home economics counted at the rate of 5 hours for each high-school unit. The remainder in botany, chemistry, design, and physiology.

I. PHYSICAL TRAINING AND HEALTH (physical education and athletics, physiology, bacteriology, anatomy):

Major.—Anatomy, 5 hours; physiology, 5 hours; bacteriology, 5 hours; physical education and athletics, 15 hours.

Minor.—Anatomy, 5 hours; physiology, 5 hours; bacteriology, 5 hours; physical education and athletics, 10 hours.

J. FINE ARTS (music, drawing and design):

Major.—30 hours in one department. Not more than 10 hours in private lessons for the development of technical skill.

Minor.—25 hours in one department. Not more than 8 hours in private lessons for the development of technical skill.

2. CURRICULUM LEADING TO THE UNIVERSITY TEACHERS' DIPLOMA.

I. GENERAL TRAINING:

The requirements for a degree from the College or the Graduate School.

II. SELECTED COLLEGE COURSES:

For Freshmen and Sophomores:

Elements of Economics.....	5
Elements of Sociology.....	3
Extempore Speaking	2
General Psychology and General Psychology Laboratory....	5

III. PROFESSIONAL COURSES:

Fundamentals of Education.....	8
A Teachers' Course.....	2 or 3
Senior Teaching	2 or 4
Additional courses to make a total of fifteen semester hours, exclusive of senior teaching.	

IV. A MINOR:

In addition to the College major, a minor of 20 hours selected from the following:

- A. ENGLISH (English language and literature, public speaking, and journalism): At least 12 hours in the department of English language and literature.
- B. FOREIGN LANGUAGES (ancient languages, Germanic languages, Hispanic languages, Romance languages): 20 hours in any one language.
- C. MATHEMATICS (mathematics): 15 hours in mathematics in addition to two units of high-school work in mathematics. The remainder in the following departments: Mathematics, physics, chemistry, geology.
- D. BIOLOGICAL SCIENCES (bacteriology, botany, entomology, physiology, zoölogy): At least 12 hours in some one department and not more than 15 hours in any department.
- E. PHYSICAL SCIENCES (chemistry, geology and mineralogy, physics and astronomy): At least 12 hours in some one department and not more than 15 hours in any department.
- F. SOCIAL SCIENCES (economics, history, political science, sociology): At least 12 hours in one department. Not more than 15 hours in either economics, political science, or sociology. 20 hours may be taken in the history department.
- G. PHILOSOPHY AND PSYCHOLOGY (philosophy, psychology): At least 10 hours and not more than 15 hours in philosophy and psychology. The remainder in economics, political science, and sociology, or in zoölogy, anatomy, and physical education.
- H. HOME ECONOMICS (home economics): 20 hours in home economics.
- I. PHYSICAL TRAINING AND HEALTH (physical education and athletics, physiology, bacteriology, anatomy): Physiology, 5 hours; bacteriology, 5 hours; physical education and athletics, 10 hours.
- J. FINE ARTS (music, drawing and design): Not permitted by College regulations.

3. CURRICULUMS LEADING TO STATE TEACHERS' CERTIFICATES.

- I. Three-year certificate renewable for life, valid in all schools of the state, including four-year high schools. The requirements for this certificate are:
 - (a) College graduation.
 - (b) Scholarship requirements as stated below for the University teachers' diploma.
 - (c) Education as follows:
 - 1. General psychology, 3 hours.
 - 2. Educational psychology.
 - 3. Educational administration.
 - 4. Other educational courses to make with 1, 2, and 3, a total of 18 semester hours, exclusive of senior teaching.
- II. Three-year certificate renewable for three-year periods, valid in elementary schools, junior high schools, and two-year high schools. The requirements for this certificate are:
 - (a) Sixty semester hours of college credit.
 - (b) As part of the sixty hours, the following courses in Education:
 - 1. General psychology.
 - 2. Methods of teaching.
 - 3. Elementary education.

III. Special certificates in music and in drawing. For requirements consult the catalog of the School of Fine Arts.

SCHOLARSHIP REQUIREMENTS.

In all the work applied on the degree of bachelor of science in education or on the University teachers' diploma (120 hours), there must be at least as many hours rated B or above as there are hours rated C or below. In this calculation 1 hour rated A is regarded as equivalent to 2 hours rated B, and 1 hour rated D is regarded as equivalent to 2 hours rated C. Also, 1 hour rated I under the former system of grading is to be counted as $1\frac{1}{2}$ hours of B, and 1 hour rated as III under the former system of grading is to be counted as $1\frac{1}{2}$ hours of C.

ELECTIVES.

In the statements of majors and minors in the above curriculums, except where the limitation is specifically mentioned, all the work for the major or minor may be taken in a given department. Furthermore, the requirements as given are minimum requirements, and there is nothing to prevent the student from taking as much additional work in the given department as he cares to, except that he may not count more than 40 hours in any college department, nor more than 60 hours in any college group.

ADMISSION.

For admission to all the courses in education (except courses 1 and 2 which are open to Sophomores) the completion of an approved four-year high-school course and at least sixty credit hours of college work in institutions approved by the University are required. This college work must include general psychology and should include the other special college courses listed for Freshmen and Sophomores in the curriculum which the student expects to follow in the School of Education.

Admission to Advanced Standing.

Credit for work of collegiate or professional standing is granted only on recommendation of the Advanced Standing Committee.

For regulation governing the granting of such credit see "Admission to Advanced Standing," Section I, page 50.

For information regarding fees see page 52.

Credit for Education Courses Allowed in the College.

A course in senior teaching and fifteen additional hours in education count for credit in the College toward the degree of bachelor of arts or of bachelor of science.

ADVISERS.

Every student in the School of Education selects the courses for which he enrolls each semester, with the advice and approval of some member of the faculty, who is called an adviser.

Students who are candidates for or who expect to become candidates for the degree of bachelor of science in education should observe the following suggestions concerning advisers.

Those planning to become superintendents or principals should be advised concerning their courses by Mr. Johnson or Mr. Kent.

Those planning to become teachers of courses in education in high school, normal school or college should be advised by Mr. Olin, Mr. Carter, or Mr. Nutt.

Those planning to become teachers of special classes for subnormal children should be advised by Mr. Schwegler.

Those planning to become specialists in the use of standardized tests and scales should be advised by Mr. Buckner.

Those planning to become teachers of the regular academic subjects in high school, normal school or college should be advised by the representative of the student's major department who conducts the teachers' course in that department.

Students who are candidates for or who expect to become candidates for the University teachers' diploma should be advised by the head of the student's major department or by some one in the department designated by the head.

THE TRAINING OF TEACHERS UNDER THE SMITH-HUGHES LAW.

The School of Education has been approved by state and Federal representatives for training teachers under the Smith-Hughes law. The course of study is carried out under the direction of the department of home economics, and details concerning it should be gotten from that department. Teachers so trained are given a special certificate valid for teaching in certain high schools in Kansas which are subsidized by state and Federal funds for vocational home economics instruction.

BUREAU OF SCHOOL SERVICE.

One of the chief functions of the School of Education in a state university is to render such service as it can in helping school administrators and teachers of the state to solve the practical problems which arise in their work. In order to systematize the efforts of the School of Education along this line, the bureau of school service is organized.

The bureau offers to lend its aid in carrying on such investigations as those in charge of the public schools wish to conduct. It is also the purpose of the bureau to initiate research on the problems that seem most important to the educational interests of the state.

It is planned that graduate study, carried on by students in the field, be supervised by the bureau. Arrangements concerning the plans and credits for this type of graduate work should be made with the dean of the School of Education.

Furthermore, the bureau provides a medium through which the results of educational investigations, made anywhere in the state, may be made most widely available to the rest of the state. The school people are invited to address the bureau concerning any of their educational problems.

RESEARCH STATION OF THE UNITED STATES BUREAU OF EDUCATION.

The University of Kansas has been selected as one of the institutions at which the United States Bureau of Education has organized research stations. The purposes of the plan as stated by the Bureau of Education are:

(1) To promote scientific research in education, and to make the results of such research available to students of education.

(2) To utilize in a national way such special resources and facilities as may be placed at the disposal of the Bureau of Education by the cooperating institutions.

(3) To coördinate and stimulate the educational forces available in the cooperating institutions.

(4) To bring the Bureau of Education into closer relations with the educational agencies of the country, and thereby to promote the bureau's understanding of educational needs and problems, and to extend its range of effective service.

The projects and problems suitable for study under this coöperative form of research are very extensive in their scope. Practically any scientific inquiry which would contribute to the advancement of educational theory or practice would be considered for acceptance. However, before any study may be undertaken under this arrangement, a comprehensive plan or outline must be submitted by the director of the research station for the approval of the commissioner of education.

Educational workers of the state who have planned studies or who wish to suggest studies which could be most efficiently conducted, and the results of which could be made most effective under this coöperative plan are cordially invited to send an outline or statement of the contemplated project or problem to the research station. All communications should be addressed to United States Bureau of Education, Research Station, University of Kansas, Lawrence, Kan.

RECOMMENDATION OF TEACHERS.

The University endeavors to assist those of its graduates who desire to teach in securing positions, and at the same time to be of service to high schools, academies, and colleges which may be in need of competent superintendents, principals, or instructors. To this end a representative committee of the faculty of the School of Education preserves a complete list and record of graduates who are engaged in teaching or have fitted themselves especially for such work. The University authorities are thus prepared at any time to recommend persons who are well qualified for educational positions. In so doing great care is exercised, the special qualifications of various teachers for the particular position in hand being in every case fully considered.

Records are kept of every detail of the student's qualifications for teaching, including the estimate of all college professors of the scholarship, personality, strength of character, and general adaptability of the candidate, as well as critical estimates of his teaching ability, indicated by his practice teaching in Oread Training School.

The committee urges members of school boards and school administrators to come to Lawrence in person when possible, so that personal conferences with both University instructors and the candidates for teaching may insure mutual satisfaction and be a guarantee of effective service.

The committee has adopted the policy, in its official recommendations, of attaching special importance to graduate study in the professional preparation of teachers.

EQUIPMENT.

The School has a growing educational museum of considerable value, including ancient and modern textbooks, former and present-day school appliances and equipments, maps and charts, a good deal of which is frequently in use in the Training School. There are over five thousand volumes in the University library classified under the title "Education." This equipment is being greatly augmented through the acquisition of the files of leading French and German educational periodicals and classical treatises. The School of Education makes constant use of the stereopticon and numerous lantern slides, and has a rapidly growing collection of stereographs with stereoscopes for illustrating their proper use in the schools. A special room for this work, fitted up as a dark room, is reserved for use of members of the faculty of the School of Education. Forty-five weekly or monthly educational periodicals come to the library. There are complete files of the leading American periodicals and the files of the leading English, French, and German periodicals are being completed. In addition to the usual library facilities, a commodious seminary room and alcove in the reading room of the library are

reserved for the use of the several departments within the School of Education. The seminary room is equipped with separate card-index system and is under the direction of a trained library attendant.

OREAD TRAINING SCHOOL.

As a laboratory for the science of education there is maintained as a part of the School of Education a typical high school under the name Oread Training School. It is housed in a separate building, which was erected in 1915. The School is designed to exemplify for prospective teachers, and to visiting teachers, principals, and superintendents, the equipment, organization, curriculum, and methods of instruction advocated by the School of Education.

University students with entrance deficiencies may make these up in the School. Any student who has completed the eighth grade in the public schools, or its equivalent, is eligible to admission. Those who have credits for high-school work done elsewhere will be admitted to those advanced courses for which their previous work qualifies them.

GRADUATE POLICY OF THE SCHOOL OF EDUCATION.

The progressive tendency in many states is to encourage teachers and school administrators to continue in some university advanced study and research in education. The most vital discoveries must finally be made by those in the field—teachers in active service and those directing scientific experimentation under actual public-school conditions. This work creates a demand for those who have had training in the methods of investigation and in the interpretation of data collected.

The department of education provides instruction suited to the needs of graduate students in educational psychology, educational sociology, educational and mental measurements, history and philosophy of education, educational administration, and in the principles of teaching the various subjects. In accordance with the regulations of the Graduate School, students may pursue, as a major or a minor, advanced work in any of these subjects. The master's degree usually requires one year of graduate work; the doctor's degree, three years. Work leading to these higher degrees, with education as the major, is planned to afford preparation for the following types of responsible positions:

1. Teaching educational subjects in colleges and normal schools.
2. Specialization in the teaching of particular subjects.
3. Practice of school administration.
4. Direction of educational research and diagnosis of exceptional mental development.
5. Directing the social life of high-school students.

Graduate work, undertaken with the major in some academic subject and the minor in education, is usually planned to afford desirable equipment for the teaching of special subjects. The degree of master of science in education, however, may be granted not only to students specializing in education, but also to certain students who desire to specialize in the study of the teaching of particular subjects and who wish to relate their master's thesis to this type of investigation.

All work for the higher degrees should be planned carefully from the beginning, in consultation with the head of the department of education. Graduate work may be done during any term, including the Summer Session. A limited number of credits may be secured toward the advanced degrees for investigation made in the field in connection with the regular duties of school positions.

DESCRIPTION OF COURSES.

SOPHOMORE COURSES.

To meet the demands of the School of Fine Arts, in which certain teacher's certificate requirements are fulfilled in two years of work above high school, and to enable Sophomore students in the College, who find it necessary to leave college and begin teaching, to meet the requirements of the State Board of Education for a three-year certificate, courses 1 and 2 are offered by the School of Education. The certificate thus secured is valid only in elementary schools, junior high schools, and two-year high schools, except that those completing the special two-year course in some special subject receive a certificate valid for teaching that subject in any of the high schools of the state. These courses will not be counted for credits toward the University teachers' diploma unless the student has taught at least one year on the certificate which the courses were used to secure.

1.—METHODS OF TEACHING. Three hours credit. Second semester, 10:30. This course deals with those fundamental principles of method that are most helpful to teachers in the organization and presentation of subject matter. The illustrative materials are taken from a wide range of subjects, but the emphasis is upon the problems that pertain particularly to the elementary schools. Nutt.

2.—ELEMENTARY EDUCATION. Three hours credit. Second semester, 11:30. The purpose of the course is to give the prospective teacher in elementary schools a general appreciation of the aim, scope, and setting of elementary education and the more necessary information on the internal organization of the elementary school. Kelly.

JUNIOR AND SENIOR COURSES.

Courses 75 and 76 listed below are required of all Juniors entering the School of Education with the view of taking the B. S. in education or the University teacher's diploma. These courses enable the student to come in contact with all of the specialized lines of subject matter in the field of education and yet leave the student some time for an intensive study in elective courses.

EXPLANATION FOR ENROLLING.

1. Although the courses give four hours credit each, the student enrolls for five hours a week, the total weekly preparation for a four-hour course being reduced for the extra hour of recitation.

2. It is especially advantageous for Juniors to start this course in the fall so that two parts may be taken in sequence and that both may be completed before specialized courses are taken. In special cases the two parts may be taken at the same time.

3. These courses satisfy the requirements of educational psychology and educational administration set by the State Board of Education for a state certificate.

4. Students who have done a part of their education work either in the University of Kansas or in some other institution, for whom these courses constitute a duplication of work, may enter other education courses to complete their requirements.

75.—FUNDAMENTALS OF EDUCATION, PART I. Four hours credit. Both semesters, at 10:30 and 3:30. The considerations which determine aims

and methods of education as found in educational psychology, educational sociology, and the theory of group measurements.

76.—FUNDAMENTALS OF EDUCATION, PART II. Four hours credit. Both semesters, at 9:30 and 2:30. The more significant aspects of the psychology of adolescence, the historical foundations of the American high school and the most important problems in school administration, especially those of the high school.

JUNIOR, SENIOR, AND GRADUATE COURSES.

HISTORY OF EDUCATION.

50.—HISTORY OF ANCIENT AND MEDIAEVAL EDUCATION. Three hours credit. First semester, 8:30, 3:30. This course is a study of educational principles and practice, systems, and educational theorists among ancient and mediæval people. It includes the important features of Oriental, Greek, Roman, early Christian, and Saracenic education, the renaissance of learning under Charlemagne, the rise of universities, and the early phases of the Renaissance movement. Olin.

51.—HISTORY OF MODERN EDUCATION. Three hours credit. First semester, 2:30; second semester, 8:30, 3:30. Doctrines and systems developing from the educational reforms and reformers of the seventeenth century, including Bacon, Comenius, and other innovators. Decline and restatement of humanism in the eighteenth century, the strengthening of realism, and the institutional development growing out of these changes. The educational evolution of the nineteenth century in Germany, France, England, and America under such leaders as Pestalozzi, Guizot, Arnold, Spencer, and Mann. Olin.

59.—EDUCATIONAL CLASSICS I. Two hours credit. First semester, 10:30. A critical and historical study of selected dialogues of Plato, and of the educational writings of Locke. An attempt will be made to trace the relation between the opinions of these two writers and the educational theory and practice of the age in which each lived. Olin.

60.—EDUCATIONAL CLASSICS II. Two hours credit. First semester, 10:30. An intensive study, in their historical setting, of the educational writings of Rousseau and Spencer. Olin.

63.—EDUCATION IN AMERICA. Three hours credit. Second semester, 9:30. A study of the origin and development of educational ideas, institutions, and systems in the colonial period; the evolution of the academy, high school, and professional school; the education of girls and women; manual and vocational instruction; and the work of leading educators and theorists: Mann, Willard, Lyon, Howe, Gallaudet, Barnard, Elliot, Harris. Olin.

102.—SEMINAR. Educational systems of Herbart and Froebel. Two hours credit. First semester, by appointment. Olin.

103.—SEMINAR. Origin and early development of universities. Two hours credit. Second semester, by appointment. Olin.

EDUCATIONAL THEORY.

54.—EDUCATIONAL CLINIC. Three hours credit. Second semester, by appointment. By the kindly coöperation of neighboring schoolmen it has been possible to provide for mature students an opportunity for the direct study of typical cases of exceptional mental development. Tests for various mental functions will be demonstrated, and the Binet-Simon, Yerkes-Bridges, and other scales of tests will be used to determine psychic normality. Schwegler.

55.—**MENTAL MEASUREMENT OF SCHOOL CHILDREN.** Three hours credit. First semester, 11:30. A study of the theory and practice of mental measurement. The course deals especially with the problems of mental deficiency, exceptional endowment, and vocational guidance.

Schwegler.

64.—**EDUCATIONAL PSYCHOLOGY.** Three hours credit. Both semesters, at 10:30. The application of psychological principles, data and methods to typical phases of school learning. Particular emphasis is placed on means of training students in economical methods of study. Readings, discussions, and exercises.

Carter.

65.—**ADVANCED METHODS OF HIGH-SCHOOL TEACHING.** Three hours credit. First semester, at 11:30. Primarily for advanced students and students with teaching experience who wish to broaden their grasp of teaching or supervising their particular subject.

Carter.

67.—**SUPERVISED STUDY.** Two hours credit. First semester, at 11:30. A very practical specialized course dealing with details of technique in directing or supervising study. Readings, discussion, and some actual practice in analyzing study faults.

Carter.

68.—**THE PRINCIPLES OF EDUCATION** Three hours credit. Second semester, 9:30. An analysis of educational norms in theory and practice in the light of the facts of biology, psychology, and sociology. Lectures, library studies, written reports.

Schwegler.

69.—**TECHNIQUE OF TEACHING.** Two hours credit. First semester, 3:30. A careful study of the fundamental principles of classroom instruction will be made. The Training School will offer abundant opportunities for demonstrative and illustrative material. The course is designed to supplement the work of teachers' courses and to correlate as much as possible with practice teaching.

Nutt.

71.—**THE NON-TYPICAL CHILD.** Three hours credit. First semester, 9:30. The growth and development of children are studied with special reference to the nature and causes of arrest as found in backward, defective, and degenerate children. This course is intended for mature students who are preparing themselves for executive positions in town and city schools and for students desiring to prepare for supervisory work. Lectures and visits to various institutions maintained by the state for defective and delinquent children.

Schwegler.

78.—**ADOLESCENCE.** Three hours credit. Both semesters, 10:30. A detailed study of the physical, social, and psychological aspects of adolescence. The course will lay special stress on the problems of physical and mental hygiene, as they appear in the physical, intellectual, social, and religious development of the adolescent.

Schwegler.

79.—**MORAL EDUCATION** Two hours credit. Second semester, 7 to 9 p. m., Wednesday. A critical study of the underlying psychological forces, both conscious and unconscious, which govern the development of habits of thought and action, followed by a review of prevailing systems of moral education.

Schwegler.

100.—**SEMINAR IN EDUCATIONAL PSYCHOLOGY.** Two hours credit. Both semesters, by appointment. Primarily individual research with some reading on related experiments or studies. Usually preceded by foundation courses in Education and courses 66 and either 65 or 67.

Carter.

101.—**SEMINAR IN MENTAL DEFECTS** Two hours credit. Both semesters, by appointment. An opportunity for mature students to make a special study of certain forms of irregular mental life frequently met in grade and high-school work.

Schwegler.

EDUCATIONAL ADMINISTRATION.

52.—**EDUCATIONAL MEASUREMENT AND EXPERIMENTATION.** Two hours credit. Second semester, 3:30. A practical course in the administration of standardized educational tests and scales, the analysis and interpretation of the results obtained, and the resultant recommendations relating to the improvement of instruction. Open only to students who have taken course 66. Buckner.

53.—**EDUCATIONAL SOCIOLOGY.** Three hours credit. First semester. This course uses sociology as a coördinate of psychology in developing the principles of education. Social education applies the social principles and data derived from a study of group relationships to school practices just as educational psychology applies the psychological principles and data derived from a study of individual minds. Smith.

56.—**VOCATIONAL EDUCATION AND GUIDANCE.** Three hours credit. First semester, 2:30. The development of vocational education in Europe and America; its organization and administration; the relation of the school system to the various industries of the community; the relation of industrial education to vocational guidance; the consideration of the various theories for the adjustment of educational means to vocational aptitudes. Johnson.

57.—**SCHOOL HYGIENE.** Three hours credit. Second semester, 3:30. The work of this course will be considered under three principal divisions: (1) Schoolroom sanitation; (2) Personal hygiene of school children; (3) Mental hygiene of school children. Nutt.

58.—**EDUCATIONAL MEASUREMENTS AND STATISTICAL METHODS.** Two hours credit. Second semester, 2:30. A study of the means and methods of accurately measuring results obtained through education. Products which can be subjected to such treatment are summarized and the treatment appropriate to each is determined. Samples of standardized educational tests and scales which have been devised will be made available for study and criticism. Sufficient technical knowledge of statistics for general use is provided by formal study and by treatment of actual data. The course closes with a detailed study of the uses which administrators, supervisors and teachers may make of accurate measurements including a critical examination of published results. Not open to students who have taken course 66. Buckner.

61.—**HIGH-SCHOOL ADMINISTRATION.** Three hours credit. Both semesters. First semester, 8:30; second semester, 8:30, 11:30. The purpose of this course is to present the practical problems in the administration of the high school. The relationship between school and community and plans for greater coöperation between the school and the home will be discussed. Each member of the class will be expected to make a rather detailed study of some high-school problem in which he is especially interested. Johnson.

66.—**STATISTICAL METHODS APPLIED TO EDUCATION.** Three hours credit. First semester, 3:30. The purpose of the course is to prepare advanced students to investigate educational problems requiring refined statistical treatment and to provide school administrators with the technical knowledge of statistics that will enable them to use most helpfully the data available in any school system. It should precede or parallel all courses involving refined measurements and should be considered a prerequisite to scientific investigation in certain fields of research. Buckner.

70.—**SCHOOL SURVEYS.** Three hours credit. First semester, 8:30. A study of kinds, purposes, methods and results of school surveys. This includes a study of selected parts of standard surveys and a consideration of types of practical survey work possible by regular administrators in ordinary school systems. Open only to experienced public-school administrators. (Not given in 1920-'21.) Kent.

72.—SUPERVISION OF INSTRUCTION. Two hours credit. First semester, 9:30. Principles and standards of supervision with concrete application of same to actual work. Particular attention is given to standard methods of measuring teaching and the teaching product. Open only to those having had teaching experience. Kent.

73.—CITY SCHOOL ADMINISTRATION. Two hours credit. Second semester, 8:30. An intensive study of some of the more common and important problems met with in administering a city school system. The problems taken up are studied in the light of scientific principles of educational administration. Kent.

74.—EDUCATIONAL ORGANIZATION AND ADMINISTRATION. Three hours credit. Second semester, 2:30. Among the topics discussed are: Relation of the national government to education in the states and insular possessions; state administrative organizations; local units of control; school costs and support; material equipment; recent legislation; administrative and supervisory officers; classification and promotion of pupils; period of attendance; physical education and health. Kelly.

77.—PRACTICAL PROBLEMS OF PUBLIC-SCHOOL EDUCATION. Credit to be arranged. Saturday morning at 10, both semesters. The work offered in this course is planned with special reference to the needs of actual teachers and administrators living in the vicinity of Lawrence. Vital problems in school work will be studied and interpreted in the light of modern scientific principles and methods of investigation. The work and the instructors will be arranged when the class first meets, September 25. The amount of credit given will depend upon the work of the individual student.

This course is designed for those teachers and school supervisors who, although in actual service, desire to continue their professional development.

104.—SEMINAR IN EDUCATIONAL ADMINISTRATION. Two hours credit. Both semesters, by appointment. Kelly.

SPECIAL METHODS AND SENIOR TEACHING.

The items enumerated below are suggestive of the kinds of topics with which the following teachers' courses in special branches are concerned:

1. A simple statement of the broader aspects of the distinctive field of education, indicating the special adjustment of the moral, æsthetic, social, and practical disciplines to be reasonably expected from a study of the subject.

2. A brief sketch of the actual history of the subject in the school curriculum, showing the gradual change and improvements in the textbook presentations of the subject, and the gradual improvements in other apparatus than textbooks adopted for use in teaching it.

3. The gradual change in the conception of its educational value and the degree and nature of correlation with other subjects.

4. The growing refinement of methods for presenting the subject.

5. The grade preparation to be presupposed at present, its present status, as seen from a comparison of typical high-school curriculums, together with the social, psychological, and practical obstacles to its attaining its ideal educational aim.

6. The necessary, and also the more ideal, preparation called for in the teacher, academic and professional.

7. References to books and special monographs dealing with the topics of the course, and a suggested list of books desirable for reference for high-school libraries.

In addition to the instruction in the following specialized courses in the theory of teaching, a continuous period of not less than nine weeks and preferably eighteen weeks of supervised teaching should be arranged

for by students electing such courses. Exceptional facilities are offered for this teaching in the Oread Training School.

81.—TEACHERS' COURSE IN BIOLOGICAL SCIENCES. Three hours credit. Both semesters, 11. The existing organization of high-school science courses and proposed reorganizations; the place and function of biological science in the high school; the conditions under which biology courses are usually given, and the organization of such courses; the methods, devices, books, and apparatus to accomplish the aims of biology teaching, and the arrangement and equipment of laboratories and classrooms. Lectures, classroom observation, reading demonstrations. It is expected that the student will register for 81 and 81a in the same semester, in order that theory and practice may be closely correlated. Eikenberry.

81a.—SENIOR TEACHING IN BIOLOGICAL SCIENCES. Both semesters, hours to be arranged. Eikenberry.

99.—TEACHERS' COURSE IN CHEMISTRY. Two hours credit. Second semester, by appointment. Pedagogics and technique of instruction in chemistry in the high school. Stratton.

99a.—SENIOR TEACHING IN CHEMISTRY. Both semesters, hours to be arranged. Stratton.

95.—TEACHERS' COURSE IN DRAWING AND DESIGN. Three hours credit. Prerequisite, courses 54, 51 and 1 in drawing. Frazier.

95a.—SENIOR TEACHING IN DRAWING AND DESIGN. Second semester, hours to be arranged. Frazier.

86.—TEACHERS' COURSE IN ENGLISH. Three hours credit. First semester, 2. The principles of teaching English composition, language, and literature; lectures, reference reading, conferences, visiting of classes and schools, reports, and final thesis. Faulkner.

The prerequisites in English for course 86 are courses 1, 2, 10, 11, 12, 13, 68, 78, and in advanced English composition five hours of any courses from 50 to 57 at option.

86a.—SENIOR TEACHING IN ENGLISH. Both semesters, hours to be arranged. Faulkner.

88.—TEACHERS' COURSE IN FRENCH. Three hours credit. First semester, by appointment. Systematic review of grammatical principles from the point of view of the requirements of elementary instruction. Outlines of historical grammar. Study of the methods of teaching languages. Open only to students who give evidence of fitness for the work. Neuen Schwander.

88a.—SENIOR TEACHING IN FRENCH. Both semesters, by appointment. Neuen Schwander.

85.—TEACHERS' COURSE IN GERMAN. Three hours credit. Second semester, 9. Advanced grammar, with theory of language teaching. Intended especially for those who desire to fit themselves for teaching German in high schools. Engel.

85a.—SENIOR TEACHING IN GERMAN. Both semesters, hours to be arranged. Engel.

91.—TEACHERS' COURSE IN HISTORY. Three hours credit. First semester, 1, Tu., and Th., third hour by appointment. A study in adapting historical and current social literature to the service of high-school students. High-school courses of study, methods of teaching, textbooks, reference books, and apparatus will be considered. Melvin.

91a.—SENIOR TEACHING IN HISTORY. Both semesters, hours to be arranged. Melvin.

83.—TEACHERS' COURSE IN HOME ECONOMICS. Three hours credit. First semester, 9. The history of the home economics movement, showing the reason for the diverse standards and aims to be found in the

work in different schools. Special emphasis will be put on the high-school problem; the ground that should be covered and methods of presentation; the planning of equipment, of courses, and of typical lessons.

Sprague.

83a.—SENIOR TEACHING IN HOME ECONOMICS. Both semesters, hours to be arranged. Cline.

87.—TEACHERS' COURSE IN LATIN. Three hours credit. First semester, 2. The work consists of discussion of the best literature on the aims and methods of teaching Latin, a critical examination of some textbooks used in secondary Latin teaching and a study of some grammatical principles. Walker.

Both the major and minor in Latin must include college courses 5, 7, 9, and 13. The major must include also courses 10, 50, and either 8 or 51.

87a.—SENIOR TEACHING IN LATIN. Both semesters, hours to be arranged. Oliver.

89.—TEACHERS' COURSE IN MATHEMATICS. Three hours credit. Second semester, 11. It deals with the history, teaching, and mutual relations of the mathematical subjects usually taught in the public schools from the beginning of the seventh grade to the end of the high-school course. This course consists of (1) history of the teaching of mathematics, reading, and lectures; (2) a comparative study of the mathematical curricula of the schools of this country and of Europe; (3) discussions on the best methods of presenting the topics. Open to Seniors and graduates who have completed courses 62 and 7 in mathematics. Mitchell.

89a.—SENIOR TEACHING IN MATHEMATICS. Both semesters, hours to be arranged. Mitchell.

94.—TEACHERS' COURSE IN MUSIC.

Downing.

94a.—SENIOR TEACHING IN MUSIC.

Downing.

(For public-school music course, see bulletin of the School of Fine Arts.)

84.—TEACHERS' COURSE IN NORMAL TRAINING. Three hours credit. First semester, 3. This course will present outlines for psychology and methods courses as they are offered in high schools, discuss textbooks, and cover in detail the problems of teaching that are involved in such courses. Nutt.

84a.—SENIOR TEACHING IN NORMAL TRAINING. Both semesters, hours to be arranged. Nutt.

97.—TEACHERS' COURSE IN PHYSICAL EDUCATION. Two hours credit. First semester, 9. Laboratory hours by appointment. A study of the principles of play, the classification of games, showing the grade for which each is adapted; and an analysis of the different games, showing the principles involved, and the attributes developed. The methods used in coaching and officiating, the locating, equipping, and organizing of playgrounds. Pratt.

97a.—SENIOR TEACHING IN PHYSICAL EDUCATION. Hours to be arranged. An analysis of gymnastic movements, showing their adaptation to the different grades; and methods of combining these into drills, devising drills for special occasions and to suit varying conditions; organizing and conducting classes; and observation of methods by visitation and practice teaching with selected classes. Pratt.

80.—TEACHERS' COURSE IN PHYSICAL SCIENCES. Three hours credit. Second semester, by appointment. A study of the appropriate subject matter in the various physical sciences taught in the high school, and the correct methods of using this subject matter in demonstration, recitation, and laboratory. Watson.

80a.—SENIOR TEACHING IN PHYSICAL SCIENCES. Both semesters, hours to be arranged. Watson.

96.—TEACHERS' COURSE IN SOCIAL SCIENCES. Three hours credit. Second semester, 11:30. A study of the general function, specific aims, and the materials and methods of high-school work in the social sciences. Needed reorganizations of the curriculum are analyzed, and a study made of the textbooks, references, and laboratory material to be used in teaching civics, economics, and sociology. Smith.

96a.—SENIOR TEACHING IN SOCIAL SCIENCES. Both semesters, hours to be arranged. Smith.

90.—TEACHERS' COURSE IN SPANISH. Three hours credit. First semester, by appointment. Theories and methods of modern language teaching; advanced grammar, bibliographies for the teacher of Spanish; examination of textbooks. Gardner.

90a.—SENIOR TEACHING IN SPANISH. Both semesters, hours to be arranged. Gardner.

SECTION X.

The Summer Session.

(353)

FACULTY.

FRANK STRONG, Chancellor of the University and President of the Faculties.

A. B. Yale, 1884; A. M. Yale, 1893; Ph. D. Yale, 1897; LL. D. Oregon, Baker, Kansas Agricultural College, 1909.

FREDERICK JAMES KELLY, Director of the Summer Session, and Professor of Education.

A. B. Nebraska, 1902; Ph. D. Columbia, 1914.

Instructors from Other Institutions.

CHARLES HENRY CUNNINGHAM, Ph. D., Adjunct Professor of History, University of Texas.

BESSIE MILLER, Instructor in Public School Music, Kansas City, Kan.

J. W. MCCLINTON, A. M., Superintendent of Public Schools, Pueblo, Colo.

Instructors from the University of Kansas.

FRANK WILSON BLACKMAR, Dean of the Graduate School and Professor of Sociology.

Ph. B. University of the Pacific, 1881; A. M. University of the Pacific, 1884; Ph. D. Johns Hopkins, 1889.

CHARLES GRAHAM DUNLAP, Professor of English Literature.

A. B. Ohio Wesleyan, 1883; A. M. Ohio Wesleyan, 1899; Litt. D. Princeton, 1892.

OLIN TEMPLIN, Professor of Philosophy.

A. B. Kansas, 1886; A. M. Kansas, 1890.

FRANK HEYWOOD HODDER, Professor of American History.

Ph. M. Michigan, 1883.

WILLIAM CHASE STEVENS, Professor of Botany.

B. S. Kansas, 1885; M. S. Kansas, 1893.

WILLIAM ALEXANDER GRIFFITH, Professor of Drawing and Painting.

Academie Julien.

EUGENIE GALLOO, Professor of Romance Languages and Literature.

Académie de Paris, Brevet, 1881; Sorbonne, 1884; B. L. Michigan, 1892; A. M. Kansas, 1895.

WILLIAM LIVESEY BURDICK, Professor of Law.

A. B. Wesleyan, 1882; A. M. Wesleyan, 1885; Ph. D. Chattanooga, 1884; LL. B. Yale, 1898.

CHARLES SANFORD SKILTON, Professor of Organ, Theory of Music and Music History.

A. B. Yale, 1889.

WILLIAM HAMILTON JOHNSON, Professor of Education.

A. B. Kansas, 1885; A. M. Kansas, 1891.

JAMES NAISMITH, Professor of Physical Education.

A. B. McGill, 1887; M. D. Gross Medical, 1898; M. P. E., Springfield, Y. M. C. A. College, 1910.

FREDERICK EDWARD KESTER, Professor of Physics.

M. E. Ohio, 1895; A. M. Cornell, 1899; Ph. D. Cornell, 1905.

HENRY WILBUR HUMBLE, Professor of Law.

A. M. Cornell, 1908; LL. B. Cincinnati, 1904; J. D. Chicago, 1915.

FRANK BURNETT DAINS, Professor of Chemistry.

Ph. B. Wesleyan, 1890; M. S. Wesleyan, 1891; Ph. D. Chicago, 1898.

ARTHUR MACMURRAY, Professor of Public Speaking.

A. B. Kansas, 1896; M. O. Ott School of Expression, 1904.

WILLIAM BELL DOWNING, Professor of Voice.

Graduate, Drake, 1905.

RAPHAEL DORMAN O'LEARY, Professor of English.

A. B. Kansas, 1893; A. B. Harvard, 1895.

RAYMOND ALFRED SCHWEGLER, Professor of Education.

A. B. Brown, 1899; A. M. Ottawa, 1907.

CHARLES HAMILTON ASHTON, Professor of Mathematics.

A. B. Union, 1887; A. M. Harvard, 1893; Ph. D. Munich, 1909.

LEON NELSON FLINT, Professor of Journalism.

A. B. Kansas, 1897.

GEORGE ELLETT COGHILL, Professor of Anatomy.

A. B. Brown, 1896; M. S. New Mexico, 1899; Ph. D. Brown, 1902.

RAYMOND A. KENT, Professor of Education.

A. B. Cornell College, 1903; A. M. Columbia, 1910; Ph. D. Columbia, 1917.

OLE OLUFSON STOLAND, Professor of Physiology.

A. B. South Dakota, 1905; M. S. Chicago, 1911; Ph. D. Chicago, 1913.

WALTER SAMUEL HUNTER, Professor of Psychology.

A. B. Texas, 1910; Ph. D. Chicago, 1912.

CARL FERDINAND NELSON, Professor of Physiological Chemistry.

A. B. Wisconsin, 1908; A. M. Wisconsin, 1910; Ph. D. Wisconsin, 1912.

ARTHUR LESLIE OWEN, Professor of Hispanic Languages.

A. B. Vermont, 1906; A. M. Illinois, 1909.

NOBLE PIERCE SHERWOOD, Professor of Bacteriology.

B. S. Kansas, 1905; A. M. Kansas, 1911.

WALTER ROBINSON SMITH, Professor of Sociology.

Ph. B. Missouri Valley, 1899; Ph. M. Chicago, 1901; Ph. D. Chicago, 1907.

CHESTER ARTHUR BUCKNER, Professor of Education.

A. B. Iowa, 1909; A. M. Iowa, 1911; Ph. D. Columbia, 1917.

HERMAN CAMP ALLEN, Professor of Chemistry.

A. B. McPherson, 1904; A. M. Kansas, 1905; Ph. D. Cornell, 1912.

LOUIS EUGENE SISSON, Professor of English.

A. B. Leland Stanford, 1904; A. M. Harvard, 1909.

ALBERT JAMES HARNO, Professor of Law.

B. S. Dakota Wesleyan, 1911; LL. B. Yale, 1914.

FORREST CLAIRE ALLEN, Professor of Physical Education, and Director of Athletics.

D. O. Central College of Osteopathy, 1912.

HARRY ROSWELL WAHL, Professor of Pathology and Bacteriology.

A. M. Wisconsin, 1910; M. D. Johns Hopkins, 1912.

ALBERTA LINTON CORBIN, Adviser of Women, and Associate Professor of German.

A. B. Kansas, 1893; Ph. D. Yale, 1902.

WILLIAM JACOB BAUMGARTNER, Associate Professor of Zoölogy.

A. B. Kansas, 1900; A. M. Kansas, 1901.

VICTOR EMANUEL HELLEBERG, Associate Professor of Sociology.

A. B. Yale, 1883; LL. B. Cincinnati, 1884.

WILLIAM WATSON DAVIS, Associate Professor of American History.

B. S. Alabama Polytechnic Institute, 1903; M. S. Alabama Polytechnic Institute, 1904; A. M. Columbia, 1906; Ph. D. Columbia, 1913.

FLOYD CARLTON DOCKERAY, Associate Professor of Psychology.

A. B. Michigan, 1907; A. M. Michigan, 1909; Ph. D. Michigan, 1915.

HUBERT WILBUR NUTT, Associate Professor of Education and Principal of Oread Training School.

Ph. B. Chicago, 1914; A. M. Chicago, 1916.

JOSEPH GRANGER BRANDT, Associate Professor of Greek.

Ph. B. Lawrence College, 1903; Ph. D. Wisconsin, 1911.

HERBERT BARKER HUNGERFORD, Associate Professor of Entomology.

A. B. Kansas, 1911; A. M. Kansas, 1913; Ph. D. Cornell, 1918.

RALPH EMERSON CARTER, Associate Professor of Education.

Ph. B. Franklin, 1906; A. M. Chicago, 1911.

ELLIS BAGLEY STOFFER, Associate Professor of Mathematics.

A. B., A. M. Drake, 1907; Ph. D. Illinois, 1911.

BLAINE FREE MOORE, Associate Professor of Political Science.

A. B. Kansas, 1901; A. M. Illinois, 1908; Ph. D. Columbia, 1913.

GEORGE WEATHERWORTH STRATTON, Associate Professor of Chemistry.

A. B. Colorado, 1907; A. M. Ohio State, 1909; Ph. D. Ohio State, 1912.

WILLIAM MCGLASHAN DUFFUS, Associate Professor of Economics and Commerce.

A. B. Leland Stanford, 1910; A. M. Wisconsin, 1913.

JOHN ISE, Associate Professor of Economics and Commerce.

Mus. B. Kansas, 1908; A. B. Kansas, 1910; LL. B. Kansas, 1911; A. M. Harvard, 1912; Ph. D. Harvard, 1914.

DINSMORE ALTER, Associate Professor of Astronomy.

B. S. Westminster College, 1909; M. S. University of Pittsburgh, 1910; Ph. D. California, 1916.

ARTHUR JACKSON MIX, Associate Professor of Botany.

A. B. Hamilton, 1910; Ph. D. Cornell, 1916.

HARRIET GREISINGER, Assistant Professor of Piano.

Mus. B. Kansas, 1895.

LULU GARDNER, Assistant Professor of Rhetoric.

A. B. Kansas, 1905.

WILLIAM REES B. ROBERTSON, Assistant Professor of Zoölogy.

A. B. Kansas, 1906; A. M. Kansas, 1907; Ph. D. Harvard, 1915.

ANNA LOUISE SWEENEY, Assistant Professor of Piano.

Mus. B. Kansas, 1906.

JOSEPHINE MAY BURNHAM, Assistant Professor of English.

Ph. B. Chicago, 1901; Ph. D. Yale, 1910.

AMIDA STANTON, Assistant Professor of Romance Languages.

A. B. Kansas, 1904; A. M. Kansas, 1910.

JOHN JEFFERSON WHEELER, Assistant Professor of Mathematics.

A. B. Indiana, 1905; A. M. Kansas, 1913.

SOLOMON LEFSCHETZ, Assistant Professor of Mathematics.

M. E. Ecole Centrale, 1905; Ph. D. Clark, 1911.

DONALD RAY BLACK, Assistant Professor of Pathology.

A. B. Kansas, 1914; M. D. Kansas, 1916.

MAXWELL FERGUSON, Assistant Professor of Economics and Commerce.

A. B. Harvard, 1908; A. M. Columbia, 1909; LL. B. Columbia, 1911.

RAY QUINCEY BREWSTER, Assistant Professor of Chemistry.

A. B. Ottawa, 1914; A. M. Kansas, 1915.

CHARLES HOYT WATSON, Assistant Professor of the Teaching of Physical Sciences.

A. B. Kansas, 1918.

HOWARD MCKEE ELSEY, Assistant Professor of Chemistry.

A. B. Stanford, 1914.

CHARLES EUGENE JOHNSON, Assistant Professor of Zoölogy.

A. B. Minnesota, 1906; A. M. Minnesota, 1907; Ph. D. Minnesota, 1912.

ELIZABETH CAMPBELL MEGUIAR, Assistant Professor of Home Economics.

Certificate, University of Chicago, 1910.

WALTER BLAINE BODENHAFFER, Assistant Professor of Sociology.

A. B. Indiana, 1911; LL. B. Indiana, 1912; A. M. Kansas, 1915.

JOSÉ MARIA OSMA, Assistant Professor of Hispanic Languages and Literatures.

College des Freres des Ecoles Chretiennes, Escuela de Bellos Artes, Barcelona, Spain; Ecole des Beaux Arts and Academie Vitty, Paris.

ANDREW J. NEWMAN, Assistant Professor of Economics and Commerce.

A. B. Washington University, St. Louis, 1910; A. M. Missouri, 1911.

JOSÉ MARIA ALBALADEJO, Assistant Professor of Hispanic Languages.

Bachiller, Instituto Cardenal Cisneros, Madrid, 1909.

THOMAS J. SMART, Assistant Professor of Education, Extension Division, and Community Adviser.

A. B. Minnesota, 1914; A. M. Minnesota, 1918.

CARLOS ISAAC REED, Assistant Professor of Physiology.

A. B. Ohio, 1915.

SARA GRANT LAIRD, Instructor in Rhetoric.

A. B. Oberlin, 1904; A. M. Columbia, 1912.

CORA IRENE REYNOLDS, Instructor in Voice.

Mus. B. Kansas, 1912.

PAUL BOWEN LAWSON, Instructor in Entomology.

B. S. Oskaloosa, 1909; M. S. Kansas, 1917.

EMILY VICTORIA BERGER, Instructor in Chemistry.

A. B. Kansas, 1914.

GORDON LAFAYETTE CRAM, Instructor in Romance Languages.

A. B. Toronto, 1894; A. M. Columbia, 1904.

JOHN AMBROSE HESS, Instructor in Romance Languages.

A. B. Kansas, 1908; A. M. Kansas, 1910.

JESSIE ALICE CLINE, Instructor in Home Economics.

B. S. in Education, Missouri, 1915; A. B. Missouri, 1916.

NATHAN HARLAN HUFFMAN, Instructor in Spanish.

A. B. Kansas, 1919.

LEWIS CHANDLER FOSTER, Assistant Instructor in Anatomy.

A. B. Kansas, 1919.

BLANCHE POTTS, Instructor in Violin.

A. B. Ottawa, 1919.

ROYAL GLEN HALL, Instructor in Sociology.

A. B. Park College, 1912; A. B. Auburn Theological Seminary, 1916.

THE SUMMER SESSION.

PURPOSE AND PLAN.

1. Students recognize the advantage of reducing their college attendance below the traditional four years, and their attendance at professional schools to as few years as may suffice to complete the course, in order that they may enter into their professional careers as early in life as possible.

2. Persons who are engaged in business, such as salesmanship, banking, insurance, office management, transportation and the like, feel a need for systematic study of their problems.

3. Teachers of all ranks are anxious to improve their professional status.

The Summer Session is organized primarily to meet the needs of these three classes. It is administered in two separate terms, a six-weeks term and a four-weeks term, for either one of which a student may enroll without enrolling for the other.

EQUIPMENT.

LIBRARY, LABORATORIES, AND ILLUSTRATIVE APPARATUS.

The Summer Session commands the entire equipment of the library of 150,000 volumes and pamphlets, and the laboratories of the University.

The work in botany, entomology, zoölogy, and geology is supported by the cabinet collections, which contain upwards of 250,000 specimens, and by ample laboratories.

Physics, chemistry and pharmacy, and the biological sciences are taught in separate and well-furnished buildings with commodious laboratories for special research as well as for classroom work, and supplied with much valuable modern apparatus.

The Greek and Latin departments have at their command a large number of casts, photographs, plates, and stereopticon slides of ancient views, portraits, buildings, statues, paintings, vases, and manuscripts.

The departments of history and modern languages are provided with wall maps and charts, and a considerable collection of photographs.

The department of mathematics has a large collection of mathematical models of the best German make.

Psychological laboratories are thoroughly equipped for the study of normal, subnormal and pathological mental processes.

The School of Education has a growing educational museum of considerable value, including ancient and modern textbooks, former and present-day school appliances and equipments, slides, maps and charts.

The School of Fine Arts has a victrola and a large number of music records, which are used to illustrate the lectures on appreciation and development of music.

The Thayer Collection, the largest and most valuable art collection in the middle West, is of great value to all students of design and drawing.

The University library is open every day of the year except Sundays and legal holidays. Liberal facilities for using the library are offered to all members of the University. All books, except reference books and books too rare to be easily replaced, may be taken from the library for three weeks.

GENERAL INFORMATION.

RECREATION.

The gymnasium and the campus give ample facilities for recreation. On account of its location the gymnasium is always cool and breezy. Such sports as tennis may be played under protection from the sun. The large floor is used for tennis, volley ball, and basket-ball. The first floor is reserved for apparatus work and is always accessible, the men and women having separate gymnasiums. There are four handball courts, which are available at all hours. Boxing, wrestling and fencing can be done in privacy in the rooms provided for these sports. Many new group games suitable for high schools have been developed in army camps and will be taught to those interested. The shower baths are commodious, and can be regulated to suit the individual. The swimming pool is a most attractive feature of the gymnasium. It is 20 by 50 feet, lined with enameled brick, and well lighted, making it one of the pleasantest in the country. Swimming classes will be organized for women who cannot swim.

The Kansas river affords a fine boating course, Potter Lake is convenient for swimming, and McCook field furnishes excellent grounds for football, baseball, tennis, and track events. Six excellent courts are available for tennis on McCook field, and five others near the gymnasium. In addition to these, the students at the Summer Session enjoy the folk dances and group games which require neither court nor apparatus. All of these facilities for recreation, except the indoor swimming for women, are free to students.

LECTURES AND ENTERTAINMENTS.

(1) Frequent lectures upon subjects of general interest will be given by members of the faculty and other educational leaders.

(2) The School of Fine Arts will provide occasional musical and literary entertainments, including the work of the regular members of the faculty of the School of Fine Arts. Community singing will be a feature of some of these programs.

THE SUMMER SESSION KANSAN.

The Summer Session Kansan is a biweekly college newspaper, edited by the students in journalism. It contains all official and student organization announcements, campus news and notes, editorial comments, etc.

ADVISER OF WOMEN.

Miss Alberta Corbin, Adviser of Women at the University, will serve in that capacity during the Summer Session. The same safeguards that women students have during the regular year in connection with their social activities and rooming facilities will be available in the Summer

Session. Rooming houses for girls will not be approved unless they have house mothers arranged for.

Through the office of the Adviser of Women frequent opportunities for informal getting together, as well as more formal parties, will be provided. Office hours will be maintained regularly for purposes of conference on matters which the women attending the Summer Session care to discuss.

ADMISSION.

The classes of the Summer Session are open to all who can satisfy the instructors that their preparation is sufficient to enable them to do the work properly; that is, a student may register in the Summer Session and attend its classes without meeting the requirements for admission which are in force during the regular session, and without paying the five-dollar matriculation fee which is required of all who enter a regular session for the first time. Record of credits will be kept on file but will not be applied toward any degree until the matriculation fee has been paid.

DATES OF THE TWO TERMS.

The first term of the Summer Session extends from Monday, June 14, to Friday, July 23, inclusive.

The second term extends from Monday, July 26, to Friday, August 20, inclusive.

There will be no classes held on Saturday during the sessions.

REGISTRATION AND ENROLLMENT.

Summer Session students are required to register and pay the Summer Session fee at the Registrar's office and then enroll for their courses in Robinson Gymnasium. A large number of faculty members will be present at the time of enrollment to advise with students concerning their courses, and it will be necessary to have the enrollment card approved by one of these faculty advisers before it will be accepted.

DATE OF ENROLLMENT AND LATE ENROLLMENT FEE.

Enrollment for the first term of the Summer Session will take place on Monday, June 14. The entire day, from eight in the morning until five in the afternoon, will be devoted to that purpose, and enrollment at a later date will be considered as late enrollment and be subject to a fee of one dollar. Those who find it impossible to enroll on that day may apply for exemption from late enrollment fee to the Director, but exemption will not be granted unless the case is a very meritorious one. Students entering late will not be allowed to enroll for the maximum number of hours credit without special permission from the Director.

Enrollment for the second term will be held on Friday afternoon, July 23, for those who are in attendance during the first term. For those who come only for the second term, enrollment will be held on Monday, July 26, but such students should enter their classes on Monday, even if they do not succeed in getting enrolled before their class hours.

NATURE OF COURSES.

The courses offered in the Summer Session are for the most part courses which are offered in the regular sessions, or modifications of such courses. Many of the courses have been selected with a view to meeting the wishes of teachers, and certain ones have been modified in some details for the same purpose. But such modifications are not so great as to make the courses unsuitable for students who do not intend to teach.

Regular students of the University must be on their guard against duplicating work. Some of the Summer Session courses, while not exactly equivalent to regular courses, are so nearly equivalent to them that credit will not be given for both. Students who have had the regular course may not take for credit the Summer Session course of the same catalog number. Students who take the Summer Session course will be barred in the future from the regular course.

AMOUNT OF CREDIT.

The normal amount of credit to be obtained in the six-weeks session is five hours; the maximum is six hours. *Under no circumstances will registration for more than six hours credit be permitted in this session* The amount of credit given for each course is indicated in the statement of that course.

The maximum amount of credit to be obtained in the four-weeks session is four hours. Students who avail themselves of both sessions may thus receive a maximum of ten hours credit for their ten weeks' work—just one-third of a regular year's work.

CREDIT TOWARD DEGREES.

Almost every course offered in the Summer Session gives credit toward one of the University degrees. The statement of each course indicates the amount of credit given for its completion, and the school or schools of the University in which it will be accepted for credit. The special sections of the catalog must be consulted for a complete statement of the degrees conferred by each school, and of the requirements for each degree.

CURRICULUMS FOR TEACHERS.

(A) The department of education in the Graduate School has arranged groupings of courses so that graduates of colleges and normal schools may get as a part of the work leading to a degree in the Graduate School, specific preparation for the several sorts of positions in public schools, normal schools, and colleges, such as:

- (1) The teaching of education courses.
- (2) The teaching of a particular academic subject.
- (3) The administration of city schools.
- (4) The use of mental and educational tests.

(B) The School of Education has arranged for varying degrees of specialization in preparation for teaching by arranging curriculums leading to the following:

- (1) The degree of B. S. in Education.
 - (a) Option 1, for superintendents and principals.
 - (b) Option 2, for teachers.
- (2) The University Teachers' Diploma.
- (3) The several Kansas State Certificates.

Students who have completed either the life certificate course or the degree course at one of the Kansas state normal schools, and students who have completed two years or four years at any standard college, can usually fit their work into one of the above curriculums without loss of credit. For full description of the courses and requirements included in the above, see the catalog of the School of Education.

GRADUATE WORK.

Graduates of the University of Kansas, or of other institutions of good rank, find in the Summer Session an opportunity to do graduate work which will lead to the master's degree. Thirty credit hours is the minimum requirement for this degree. A thesis is required as part of this work. *The selection of all courses and of a subject for a thesis must be sanctioned in advance by the Dean of the Graduate School and the head of the department in which the applicant elects to do his major work.* Therefore, students desiring graduate credit for summer work should register with the Dean of the Graduate School, as well as with the Director of the Summer Session.

Since ten hours of work may be completed in one summer of ten weeks, it is now possible to secure the master's degree in three summer sessions.

FEES.

The fee for Kansas students for the six-weeks term or for both terms together of the Summer Session, is ten dollars; for nonresidents, fifteen dollars. For the four-weeks term it is half the above. This fee covers admission to all courses except private lessons in music. For certain laboratory courses there is, in addition, the cost of materials.

ROOMING AND BOARDING ACCOMMODATIONS.

Lawrence is well provided with boarding houses and restaurants, and a sufficient number of these continue in operation to supply all demands of the Summer Session. The stewards of some of the existing student boarding clubs remain on the ground and are prepared to carry on their organizations.

A list of rooms and boarding places for men is kept on file in the Registrar's office, and for women in the office of the Adviser of Women. The number of students is so much less in summer than in the regular session that there are an abundance of rooms from which to choose.

DESCRIPTION OF COURSES.

The Summer Session courses offered by each department are numbered to correspond with the numbers of the same courses in the general catalog. Courses numbered 1 to 49 are in general for students of freshman and sophomore rank. Courses 50 to 99 are for juniors and seniors and, when so designated, for graduate students also. Courses 100 and above are strictly graduate courses.

ANATOMY.

First Term, June 14 to July 23.

Students who are regularly matriculated in the School of Medicine may enroll in courses s 1, s 2, etc. All other students who fulfill the prerequisite of 10 hours of biology, including comparative anatomy, may enroll in courses s 51, s 52, etc. All students who do not own a microscope may secure the use of one from the department for a fee of \$2. s 50 is recommended to students of education and psychology.

s 1 or s 51.—DISSECTION OF THE ARM. 90 laboratory hours. Fee, \$5.

s 2 or s 52.—DISSECTION OF THE LEG. 90 laboratory hours. Fee, \$5.

s 3 or s 53.—DISSECTION OF THE ABDOMEN AND THORAX. 126 laboratory hours. Fee, \$10.

s 4 or s 54.—DISSECTION OF THE HEAD AND NECK. 126 laboratory hours. Fee, \$10.

s 7a.—HISTOLOGY. Three hours credit; 106 hours of recitation and laboratory work. Time to be arranged. Fee, \$3.

s 7b.—SPLANCHNOLOGY. Two hours credit; 70 hours of recitation and laboratory work. Time to be arranged. Fee, \$2.

s 8.—EMBRYOLOGY AND EMBRYOGENY. Two hours credit; 54 clock hours to be arranged. Fee, \$2.

s 9.—NEUROLOGY. Three hours credit; 90 clock hours. Lecture at 8; 60 laboratory hours to be arranged. Fee, \$3.

s 50.—THE NERVOUS SYSTEM. A treatment of the principles of nervous structure and function as applied to problems in education and psychology. Three hours credit in the College.

s 104.—ADVANCED WORK IN ANATOMY. Credit and time to be arranged.

s 105.—RESEARCH IN ANATOMY. Credit and time to be arranged.

ANCIENT LANGUAGES.

First term, June 14 to July 23.

s 12 or s 50.—LATIN COMPOSITION. Two hours credit; as 12, in the College; as 50, in the College or the Graduate School. 9 to 10.

s 87.—TEACHERS' COURSE IN LATIN. Three hours credit in the School of Education or the Graduate School. 10:30 to 12.

s 102.—LATIN EPIGRAPHY. Two hours credit in the Graduate School. 8 to 9.

ASTRONOMY.

(See Physics.)

BACTERIOLOGY.*First term, June 14 to July 23.*

s 50.—GENERAL BACTERIOLOGY. Five hours credit in the College or the Graduate School. 7:30 to 12.

s 60.—BACTERIOLOGICAL JOURNALS. One hour credit in the College or the Graduate School. By appointment.

s 61.—SPECIAL PROBLEMS IN BACTERIOLOGY. Two to six hours credit in the College or the Graduate School.

BIOCHEMISTRY.*First Term, June 14 to July 23.*

s 50.—BIOLOGICAL CHEMISTRY. Two, three, four, or six hours credit in the College, School of Medicine, School of Pharmacy, or the Graduate School.

BOTANY.*First Term, June 14 to July 23.*

s 1.—THE LIVING PLANT. Three hours credit in the College, 7:30 to 9; or five hours credit, 7:30 to 11.

s 58.—PROBLEMS IN THE MORPHOLOGY OF SPERMATOPHYTES. Five hours credit in the College or Graduate School. 7:30 to 11.

s 61.—TREES AND SHRUBS. Three hours credit in the College or the Graduate School. 9 to 10:30.

Second Term, July 26 to August 20.

s 60.—AGRICULTURE. Two hours credit in the College. 9 to 10:30.

s 62.—ELEMENTARY PLANT PATHOLOGY. Four hours credit in the College or the Graduate School. 7:30 to 11.

CHEMISTRY.*First Term, June 14 to July 23.*

The following courses, with the exception of course 99, involve laboratory work; the student will therefore report to the instructor in charge and receive his laboratory assignment. He will then pay the fee scheduled at the business office of the University, also a deposit to guarantee the payment of breakage or loss of apparatus, the balance from this deposit to be returned at the end of the term. A coupon book will also be needed to purchase supplies from the storeroom.

s 1.—GENERAL CHEMISTRY. Five hours credit in the College. 7:30 to 12.

s 2.—INORGANIC CHEMISTRY. Four or five hours credit. 7:30 to 12.

s 3.—QUALITATIVE ANALYSIS. Five hours credit in the College, School of Pharmacy, Mining or Chemical Engineering courses. Four hours credit in other engineering courses. 7:30 to 12.

s 51.—QUANTITATIVE ANALYSIS I. Two, three, or five hours credit in the College, School of Engineering, or School of Pharmacy. 7:30 to 12.

s 52.—QUANTITATIVE ANALYSIS II. Two, three, or five hours credit. 7:30 to 12.

s 52 C.—GAS ANALYSIS. Two hours credit in the School of Engineering or the Graduate School. By appointment.

s 52 E.—OIL ANALYSIS. Two hours credit in the School of Engineering or the Graduate School. By appointment.

s 61.—ELEMENTARY ORGANIC CHEMISTRY. Five hours credit in the College, School of Medicine, or School of Pharmacy, but not in the School of Engineering. 7:30 to 12.

s 63.—ADVANCED ORGANIC CHEMISTRY or (= 163) ORGANIC CHEMISTRY II. Five hours credit in the College (63); or five hours credit in the Graduate School (163). 7:30 to 12.

s 164.—ORGANIC PREPARATIONS (Advanced). Two or three hours, credit in the Graduate School. 7:30 to 12. Prerequisite, course 163 of its equivalent.

s 71.—PHYSICAL CHEMISTRY II. Five hours credit in the College, School of Engineering or Graduate School.

s 165.—ORGANIC CHEMISTRY (Research). Five hours credit in the Graduate School. 7:30 to 12.

s 99.—TEACHERS' COURSE IN CHEMISTRY. Two hours credit in the Graduate School or School of Education. 10:30 to 11:30.

Second Term, July 26 to August 20.

s 51.—QUANTITATIVE ANALYSIS. Two, three or four hours credit in the College or School of Engineering. 7:30 to 12.

s 52 D.—FOOD ANALYSIS. Three hours credit in the College or Graduate School. Prerequisite, course 51. 7:30 to 12.

s 52 G.—CHEMISTRY OF MILLING AND BAKING. Two hours credit in the College or the Graduate School. 7:30 to 12.

s 164.—ORGANIC PREPARATIONS (Advanced). Two or three hours credit in the Graduate School. 7:30 to 12.

DRAWING AND DESIGN.

First Term, July 14 to July 23.

s 1.—FREE-HAND DRAWING. Three hours credit in the College or School of Fine Arts. 7:30 to 9:30.

s 51.—FREE-HAND DRAWING. Three hours credit in the College or School of Fine Arts. 7:30 to 9:30. A continuation of course 1.

s 2.—ELEMENTARY DESIGN. Three hours credit in the College or the School of Fine Arts. 9:30 to 11:30.

s 8.—PAINTING. Three hours credit in the School of Fine Arts. By appointment.

ECONOMICS AND COMMERCE.

First Term, June 14 to July 23.

s 1.—ELEMENTS OF ECONOMICS. Four hours credit in the College. 8 to 10.

s 57.—BUSINESS FINANCE. Two hours credit in the College or Graduate School. 9 to 10.

s 60.—LIFE INSURANCE. Two hours credit in the College or Graduate School. 10:30 to 11:30.

s 69.—BUSINESS LAW. Three hours credit in the College or Graduate School. 7:30 to 9.

s 100.—SEMINAR. One to four hours credit in the Graduate School. Hour to be arranged.

Second Term, July 26 to August 20.

s 4.—INDUSTRIAL AND COMMERCIAL GEOGRAPHY. Two hours credit in the College. 10:30 to 12.

s 5 and s 6.—EUROPEAN INDUSTRY AND COMMERCE IN THE NINETEENTH CENTURY. Two hours credit in the College. 7:30 to 9.

s 73.—MODERN ECONOMIC REFORM. Two hours credit in the College or Graduate School. 9 to 10:30.

s 81.—MARKETS AND MARKETING. Two hours credit in the College or Graduate School. 7:30 to 9.

EDUCATION.*First Term, June 14 to July 23.*

s 52.—EDUCATIONAL MEASUREMENTS AND STATISTICAL METHODS. Three hours credit in the School of Education or the Graduate School. 9 to 10:30.

s 53.—SOCIAL EDUCATION. Three hours credit in the School of Education or the Graduate School. 10:30 to 12.

s 55.—THE MENTAL MEASUREMENT OF SCHOOL CHILDREN. Three hours credit in the School of Education or the Graduate School. 10:30 to 12.

s 56.—VOCATIONAL EDUCATION. Three hours credit in the School of Education or the Graduate School. 7:30 to 9.

s 57.—SCHOOL HYGIENE. Three hours credit in the School of Education or the Graduate School. 7:30 to 9.

s 58.—ELEMENTARY SCHOOL CURRICULUM. Two hours credit in the School of Education or the Graduate School. 10:30 to 11:30.

s 61a — HIGH-SCHOOL ADMINISTRATION (Principals). Two hours credit in the School of Education or the Graduate School. 9 to 10.

s 61b.—HIGH-SCHOOL CLASSROOM MANAGEMENT. Two hours credit in the School of Education or the Graduate School. 10:30 to 11:30.

s 64.—EDUCATIONAL PSYCHOLOGY. Three hours credit in the School of Education or in the Graduate School. 7:30 to 9.

s 67.—PROBLEMS IN SUPERVISED STUDY. Two hours credit in the School of Education or the Graduate School. 9 to 10.

s 70.—THE SCHOOL SURVEY AND THE SUPERINTENDENT'S ANNUAL REPORT. Two hours credit in the School of Education or the Graduate School. 10:30 to 11:30.

s 71.—THE NONTYPICAL CHILD. Three hours credit in the School of Education or the Graduate School. 9 to 10:30.

s 80.—TEACHERS' COURSE IN PHYSICAL SCIENCES. Three hours credit in the School of Education or the Graduate School. 7:30 to 9.

s 84.—TEACHERS' COURSE IN NORMAL TRAINING. Three hours credit in the School of Education or the Graduate School. 9 to 10:30.

s 87.—TEACHERS' COURSE IN LATIN. (See Ancient Languages).

s 88.—TEACHERS' COURSE IN FRENCH. (See Romance Languages).

s 99.—TEACHERS' COURSE IN CHEMISTRY. (See Chemistry).

s 104.—SEMINAR IN EDUCATIONAL ADMINISTRATION. Two to six hours credit in the Graduate School. By appointment.

Second Term, July 26 to August 20

s 62.—JUNIOR HIGH SCHOOL. Two hours credit in the School of Education or in Graduate School. 9 to 10:30.

s 72.—SUPERVISION OF INSTRUCTION. Two hours credit in the School of Education or the Graduate School. 7:30 to 9.

s 59.—RURAL EDUCATION. Two hours credit in the School of Education or the Graduate School. 10:30 to 12.

s 60.—THE RURAL HIGH SCHOOL. Two hours credit in the School of Education or the Graduate School. 9 to 10:30.

73b.—SCHOOL BUILDINGS AND EQUIPMENT. Two hours credit in the School of Education or the Graduate School. 10:30 to 12.

73c.—FINANCING PUBLIC EDUCATION. Two hours credit in the School of Education or the Graduate School. 7:30 to 9.

ENGLISH.

First Term, June 14 to July 23.

s 1.—RHETORIC AND COMPOSITION. Three hours credit in the College. 7:30 to 9.

s 11.—ENGLISH LITERATURE. Three hours credit in the College. 9 to 10:30.

s 12.—THE HISTORY OF ENGLISH LITERATURE. Three hours credit in the College. 9 to 10:30.

s 50.—NARRATION AND DESCRIPTION. Three hours credit in the College or the Graduate School. 7:30 to 9.

s 71.—AMERICAN LITERATURE. Three hours credit in the College or the Graduate School. 7:30 to 9.

s 76.—ENGLISH LITERATURE OF THE NINETEENTH CENTURY. Two hours credit in the College or the Graduate School. 10:30 to 12.

s 78.—SHAKSPERE. Three hours credit in the College or the Graduate School. 9 to 10:30.

s 89.—THE ENGLISH ESSAY. Three hours credit in the College or the Graduate School. 9 to 10:30.

Second Term, July 26 to August 20.

s 2.—RHETORIC AND COMPOSITION. Two hours credit in the College. 7:30 to 9. A fundamental course.

s 10.—ENGLISH LITERATURE. Two hours credit in the College. 9 to 10:30.

s 14.—THE HISTORY OF ENGLISH LITERATURE. Two hours credit in the College. 7:30 to 9.

s 70.—ENGLISH USAGE. Two hours credit in the College or the Graduate School. 9 to 10:30.

ENTOMOLOGY.

First Term, June 14 to July 23.

s 50.—INTRODUCTORY ENTOMOLOGY. Five hours credit in the College. 7:30 to 12.

s 63.—FIELD ENTOMOLOGY. Three to six hours credit in the College. 7:30 to 12.

s 64.—RESEARCH. Two to four hours credit in the College.

s 100.—RESEARCH. Three to six hours credit. Open to graduate students only.

Second Term, July 26 to August 20.

s 57.—HOUSEHOLD INSECTS. Two hours credit in the College. 9 to 10:30.

s 60.—AGRICULTURE. Two hours credit in the College. 7:30 to 9.

s 64.—RESEARCH. Two to four hours credit in the College. By appointment.

s 100.—RESEARCH. Two to four hours credit in the Graduate School. By appointment.

FRENCH.

(See Romance Languages.)

HISPANIC LANGUAGES AND LITERATURES.

First Term, June 14 to July 23.

s 1a or s 51a.—ELEMENTARY SPANISH. Three hours credit in the College, School of Engineering or School of Fine Arts; may be completed for five hours credit by taking s 1b of the second term. 7:30 to 9.

s 2a or s 52a.—SPANISH READING AND GRAMMAR. Three hours credit in the College, School of Engineering or School of Fine Arts; may be completed for five hours credit by taking s 2b of the second term. 9 to 10:30.

s 3.—MODERN SPANISH WRITERS. Three hours credit in the College, School of Engineering or School of Fine Arts. 9 to 10:30.

s 7.—SPANISH CONVERSATION. Three hours credit in the College. 10:30 to 12.

s 12.—COMMERCIAL SPANISH. Three hours credit in the College. 7:30 to 9.

s 56.—THE SPANISH NOVEL OF THE SEVENTEENTH CENTURY. Two hours credit in the College or Graduate School. 9 to 10:00.

s 100.—SEMINAR IN SPANISH. Two or three hours credit in the Graduate School. By appointment.

Second Term, July 26 to August 20.

s 1b or s 5b.—ELEMENTARY SPANISH, *completed*. Two hours credit in the College. 7:30 to 9.

s 2b or s 52b.—SPANISH READING AND GRAMMAR, *completed*. Two hours credit in the College. 9 to 10:30.

HISTORY AND POLITICAL SCIENCE.

First Term, June 14 to July 23.

s 10.—AMERICAN GOVERNMENT. Three hours credit in the College. 9:30 to 11.

s 64.—CONTEMPORARY DIPLOMACY. Three hours credit in the College or the Graduate School. 9:30 to 11.

s 68.—THE AMERICAN REVOLUTION. Three hours credit in the College or the Graduate School. 9:30 to 11.

s 71.—THE PRELUDE TO THE CIVIL WAR. Three hours credit in the College or the Graduate School. 11 to 12:30.

s 74.—CONTEMPORARY AMERICAN HISTORY, 1876-1918. Three hours credit in the College or the Graduate School. 8 to 9:30.

s 83.—AMERICAN STATE GOVERNMENT. Three hours credit in the College or the Graduate School. 8 to 9:30.

s 102.—SEMINAR IN AMERICAN HISTORY. Three or six hours credit in the Graduate School. By appointment.

Second Term, July 26 to August 20.

s 72.—CONTEMPORARY LATIN-AMERICA. Two hours credit in the College or the Graduate School. 8 to 9:30.

s 73.—PROBLEMS OF THE FAR EAST. Two hours credit in the College or the Graduate School. 9:30 to 11.

HOME ECONOMICS.

First Term, June 17 to July 23.

s 1 and s 2.—HOME ARCHITECTURE AND DECORATION. Three hours credit in the College. 9 to 10:30.

s 6.—FOOD AND NUTRITION. Three hours credit in the College. 7:30 to 9.

s 72a.—CLOTHING DESIGN. Three hours credit in the College. 7:30 to 9.

s 82.—HOME NURSING. Three hours credit in the College. 10:30 to 12.

JOURNALISM.

First Term, June 17 to July 23.

s 1.—THE NEWSPAPER. Three hours credit in the College. 9 to 10:30.

s 51.—MAGAZINE WRITING. Three hours credit in the College or in the Graduate School. 10:30 to 12.

NOTE.—For the benefit of teachers of English or newspaper writing who have to deal with the problems of the high-school paper, a weekly round table, open to students in journalism courses, will be held. The round table will consider the methods of developing and utilizing the newspaper in the school—its value as an outlet for student production and as an interpreter of the school to the public—as treated in the journalism department bulletin, "Newspaper Writing in High Schools."

LATIN.

(See Ancient Languages.)

LAW.

First Term, June 14 to July 23.

The courses in law in the Summer Session are designed to assist those who do not have the requisite credits in law to entitle them to enroll regularly in either the Middle or Senior classes of the School of Law, or who desire to shorten the actual time required to complete the three-year course of study.

Any two of the following courses may be taken by the student upon satisfying the instructor of his preparation to undertake the work. It is intended, however, that those who wish to shorten the actual time required for the full course, that the courses in criminal law and torts shall be taken up in the first Summer Session; agency and insurance in the second Summer Session; and partnership and wills in the third Summer Session. During the regular sessions the student will pursue the course of study in the order stated in the General Catalog of the University for students enrolled in the Summer Session course.

s 2.—CRIMINAL LAW. 7:30 to 9.

s 4.—AGENCY. 9 to 10:30.

s 5.—TORTS. 9 to 10:30.

s 13.—INSURANCE. 10 to 12.

s 27.—PARTNERSHIP. 7:30 to 9.

s 29.—WILLS. 10:30 to 12.

MATHEMATICS.*First Term, June 14 to July 23.*

s 1.—**SOLID GEOMETRY.** Three hours credit in the College, required for entrance to the School of Engineering. 7:30 to 9.

s 2.—**COLLEGE ALGEBRA.** Three hours credit in the College. 9 to 10:30.

s 4.—**ANALYTICAL GEOMETRY I.** Two hours credit in the College. 8 to 9.

s 5.—**CALCULUS I.** Three hours credit in the College. 9 to 10:30.

s 50.—**ANALYTICAL MECHANICS.** Three hours credit. 7:30 to 9.

s 54.—**ELEMENTARY NUMBER THEORY.** Three hours credit. 9 to 10:30.

Second Term, July 26 to August 20.

s 3.—**PLANE TRIGONOMETRY.** Two hours credit in the College. 7:30 to 9.

s 10.—**MATHEMATICAL THEORY OF INVESTMENT.** Two hours credit. 9 to 10:30.

MEDICINE.*First Term, June 14 to July 23.*

(See Anatomy.)

(See Biochemistry.)

(See Chemistry.)

(See Pathology.)

(See Physiology.)

MUSIC.*First Term, June 14 to July 23.***Description of Courses.**

All classes meet daily.

The following theoretical subjects may be taken without an additional fee:

PUBLIC-SCHOOL MUSIC.

s 1.—**TEACHING OF MUSIC IN GRADES 1, 2, 3, and 4.** Two hours credit. 8 to 9.

s 2.—**TEACHING OF MUSIC IN GRADES 5, 6, 7, AND 8.** Two hours credit. 9 to 10.

s 4.—**TEACHING OF MUSIC IN HIGH SCHOOLS.** Two hours credit. 10:30 to 11:30.

SIGHT SINGING AND EAR TRAINING.

s 1.—**ELEMENTARY SIGHT SINGING AND EAR TRAINING.** One hour credit. 7:30 to 8.

s 3.—**ADVANCED SIGHT SINGING AND EAR TRAINING.** One hour credit. 7:30 to 8.

MUSIC THEORY.

s 1.—**HARMONY.** Two hours credit in the College or in the School of Fine Arts. 10:30 to 11:30.

s 2.—**HARMONY.** Two hours credit in the College or in the School of Fine Arts. 10:30 to 11:30.

s 3.—HARMONY. Two hours credit in the College or in the School of Fine Arts. 8 to 9.

HISTORY OF MUSIC.

s 50.—DEVELOPMENT OF MUSIC. Two hours credit in the College or in the School of Fine Arts. 9 to 10.

PIANO, VOICE, VIOLIN, ORGAN.

Courses in piano, voice, violin, and organ are offered by the Department of Music with the following credits in the School of Fine Arts. No credit will be allowed for less than two lessons and eight hours practice each week.

TUITION RATES.

Students paying the regular Summer Session fee may take any of the theoretical courses, taught in classes, for which they are prepared.

Kansas students taking two lessons a week and paying not less than \$12 in special fees, or nonresident students taking two lessons a week and paying not less than \$18 in special fees, may take any of the theoretical music subjects or any other regular courses offered in the Summer Session without paying the regular Summer Session fee.

FEES FOR PRIVATE LESSONS FOR THE SIX-WEEKS TERM.

Private lessons in voice with Professor Downing:

One half-hour lesson a week.....	\$12.00
Two half-hour lessons a week.....	24.00

Private lessons in violin with Miss Potts:

One half-hour lesson a week.....	\$6.00
Two half-hour lessons a week.....	12.00

Private lessons in piano with Miss Greisinger or Miss Sweeney:

One half-hour lesson a week.....	\$6.00
Two half-hour lessons a week.....	12.00

Private lessons in voice with Miss Reynolds:

One half-hour lesson a week.....	\$6.00
Two half-hour lessons a week.....	12.00

Private lessons in organ or piano with Professor Skilton:

One half-hour lesson a week.....	\$12.00
Two half-hour lessons a week.....	24.00

PIANO PRACTICE.

The department has ten private practice rooms, each containing a new Haines Bros. piano. For one hour daily practice for the six-weeks term the fee is \$1.50. Pianos may also be rented at private houses or at the music dealers'.

Organ practice at local churches, \$2 to \$3 a month for one hour a day.

SPECIAL STUDENTS.

Special students in piano, voice, violin or organ may be admitted to the Summer Session by obtaining the permission of the Dean of the School of Fine Arts, and by paying the special fees stated above.

RECITALS.

The faculty of the School of Fine Arts will give a recital each week of the first-term session. The students in music will give fortnightly recitals.

"Community sings," conducted by Dean Butler and Professor Downing, will be features of the first-term session.

PATHOLOGY.*First term, June 14 to July 23.*

The following courses in pathology will be offered at Rosedale, if there is sufficient demand for them:

1. GENERAL AND SPECIAL PATHOLOGY.
- 2.—LABORATORY DIAGNOSIS.
- 3.—ADVANCED PATHOLOGY.

PHARMACY.

(See Biochemistry.)

(See Chemistry.)

(See Physics.)

PHILOSOPHY AND PSYCHOLOGY.*First Term, June 14 to July 23.*

s 1a.—GENERAL PSYCHOLOGY. Three hours credit in the College. 7:30 to 9.

s 50.—ATTENTION, LEARNING AND THOUGHT. Two hours credit in the College or Graduate School. 10:30 to 11:30.

s 68.—ADVANCED PSYCHOLOGY. Two to five hours credit in the College or Graduate School. By appointment.

Second Term, July 26 to August 20.

s 1b.—GENERAL PSYCHOLOGY LABORATORY. Two hours credit in the College. 8 to 11.

s 52.—ABNORMAL PSYCHOLOGY. Two hours credit in the College or Graduate School. 10:30 to 12.

s 69.—ADVANCED PSYCHOLOGY II. Two to five hours credit in the College or Graduate School. By appointment.

s 10.—LOGIC. Two hours credit in the College. 7:30 to 9.

s 81.—PRACTICAL ETHICS. Two hours credit in the College or Graduate School. 9 to 10:30.

PHYSICAL EDUCATION.*First Term, June 14 to July 23.*

s 20.—HYGIENE. One hour credit in the College. 9 to 10.

s 52.—KINESIOLOGY. Three hours credit in the College. 10:30 to 12.

s 56.—PRINCIPLES OF GYMNASICS. Two hours credit in the College. 2 to 3.

s 57.—PRINCIPLES OF RECREATIVE SPORTS FOR WOMEN. Two hours credit in the College. 3 to 4.

s 57b.—PRINCIPLES OF RECREATIVE SPORTS FOR MEN. Two hours credit in the College. 3 to 4.

PHYSICS AND ASTRONOMY.

First Term, June 14 to July 23.

PHYSICS.

s 2.—DEVELOPMENT OF PHYSICS, INCLUDING RECENT ADVANCES. Five hours credit in the College or the School of Pharmacy. Lectures and recitations, 10:30 to 12, and laboratory, 9 to 11.

s 2 (class).—Three credit hours, 10:30 to 12.

s 2 (lab.).—Two credit hours, 9 to 11.

s 3a.—GENERAL PHYSICS I. Mechanics, sound and heat. Three hours credit in the College, the School of Engineering or the School of Pharmacy.

s 3b.—GENERAL PHYSICS II. Light and electricity. Three hours credit in the College, the School of Engineering or the School of Pharmacy. (Not offered in 1920.)

s 4a.—GENERAL PHYSICS LABORATORY I. Mechanics, sound and heat. Two hours credit in the College, the School of Engineering or the School of Pharmacy. 9 to 11.

s 4b.—GENERAL PHYSICS LABORATORY II. Light and electricity. Two hours credit in the College, the School of Engineering or the School of Pharmacy. 9 to 11.

s 107.—RESEARCH AND THESIS. Three to six hours credit in the Graduate School. By appointment.

ASTRONOMY.

s 10.—DESCRIPTIVE ASTRONOMY. Three hours credit in the College. 7:30 to 9.

s 11. OBSERVATIONAL ASTRONOMY. Three hours credit in the College. The laboratory part of the descriptive work. 9 to 11:30 each day and 8 to 10 Tuesday and Thursday evenings.

PHYSIOLOGY.

First Term, June 14 to July 23.

s 1.—ELEMENTARY PHYSIOLOGY. Five hours credit in the College. 7:30 to 12.

s 70.—ADVANCED PHYSIOLOGY. Five hours credit in the College or Medical School. Laboratory, 7:30 to 10:30. Recitations, 10:30 to 12.

s 63 or s 100.—SPECIAL PROBLEMS, OR RESEARCH IN PHYSIOLOGY. Three to six hours credit in the College or the Graduate School. By appointment.

Second Term, July 26 to August 20.

52.—HYGIENE. Two or three hours credit in the College. 7:30 to 9.

53.—INDUSTRIAL HYGIENE. Two hours credit in the College. 9 to 10:30.

s 71.—MEDICAL PHYSIOLOGY II. Four hours credit in the School of Medicine.

s 63 or s 100.—SPECIAL PROBLEMS, OR RESEARCH IN PHYSIOLOGY.

PUBLIC SPEAKING.*First Term, June 14 to July 23.*

- s 1.—ORAL INTERPRETATION. Two hours credit in the College. 8 to 9.
 s 50.—EXTEMPORE SPEAKING. Two hours credit in the College. 9 to 10.
 s 60.—DRAMATIC ART I. Two hours credit in the College. 10:30 to 11:30.

ROMANCE LANGUAGES.*First Term, June 14 to July 23.*

- s 1a or s 51a.—ELEMENTARY FRENCH. Three hours credit in the College, School of Engineering, School of Fine Arts; or an entrance unit.
 s 2a or s 52a.—FRENCH READING AND GRAMMAR. Three hours credit in the College, School of Engineering, or School of Fine Arts; or an entrance unit if completed by s 2b or s 52b of the second term. 9 to 10:30.
 s 3.—MODERN FRENCH WRITERS. Three hours credit in the College, School of Engineering, or School of Fine Arts. 7:30 to 9.
 s 6.—FRENCH PROSE AND POETRY. Three hours credit in the College. 10:30 to 12.
 s 10.—FRENCH CONVERSATION. One hour credit in the College, School of Engineering, or School of Fine Arts. 11:30 to 12.
 s 58.—VICTOR HUGO. Two hours credit in the College or Graduate School. 10:30 to 11:30.
 s 88.—TEACHERS' COURSE IN FRENCH. Three hours credit in the College, the School of Education, or the Graduate School. 9 to 10:30.

Second Term, July 26 to August 20.

- s 1b or s 51b.—ELEMENTARY FRENCH, *completed*. Two hours credit in the College, School of Engineering, or School of Fine Arts, thus making with s 1a or s 51a a five-hour credit in French 1 or 51, or an entrance unit. 9 to 10:30.
 s 2b or s 52b.—FRENCH READING AND GRAMMAR, *completed*. Two hours credit in the College, School of Engineering, or School of Fine Arts, thus making with s 2a or s 52a a five-hour credit in French 2 or 52, or an entrance unit. 10:30 to 12.

SOCIOLOGY.*First Term, June 14 to July 23.*

- s 1 or s 50.—ELEMENTS OF SOCIOLOGY. Two or three hours credit in College or Graduate School. 9 to 10:30.
 s 52.—SOCIAL PATHOLOGY. Two hours credit in the College or Graduate School. 10:30 to 11:30.
 s 58.—ANTHROPOLOGY. Two hours credit in the College or Graduate School. 9 to 10.
 s 67.—EUGENICS. Three hours credit in the College or Graduate School. 7:30 to 9.
 s 70.—COMMUNITY ORGANIZATION. Two hours credit. 9 to 10.
 s 101.—SEMINAR IN SOCIAL INVESTIGATION. Two to six hours credit, by appointment.

Second Term, July 26 to August 20.

- s 2.—RURAL SOCIOLOGY. Two hours credit. 7:30 to 9.
 s 56.—THE FAMILY. Two hours credit. 10:30 to 12.

- s 61.—CONTEMPORARY SOCIETY. Two hours credit. 9 to 10:30.
s 64.—MUNICIPAL SOCIOLOGY. Two hours credit. 10:30 to 12.
s 100.—SEMINAR IN SOCIOLOGY. Two to four hours credit, by appointment.

SPANISH.

(See Hispanic Languages and Literatures.)

ZOOLOGY.

First Term, June 14 to July 23.

- s 1.—ELEMENTARY ZOOLOGY. A study of animal life. Five hours credit in the College. Laboratory, 7:30 to 10:30. Lectures, 10:30 to 12.
s 3.—COMPARATIVE ANATOMY. Five hours credit in the College. 7:30 to 12.
s 53.—HISTOLOGICAL TECHNIC. Three hours credit in the College or the Graduate School. 9 to 11:30.
s 73.—ZOOLOGICAL PROBLEMS. Two to six hours credit in the College or Graduate School.
s 74.—BIOLOGICAL SURVEY. Three to six hours credit in the College or Graduate School.

Second Term, July 26 to August 20.

- s 64.—HEREDITY IN RELATION TO EUGENICS. Two hours credit in the College or Graduate School. 10:30 to 12.
s 72.—GENETICS IN RELATION TO AGRICULTURE. Two hours credit in the College or Graduate School. 9 to 10:30.
s 73.—ZOOLOGICAL PROBLEMS. Two to four hours credit in the College or Graduate School. By appointment.

SECTION XI.

The University Extension Division.

(379)

FACULTY.

- FRANK STRONG, Ph. D., Chancellor of the University.
H. G. INGHAM, A. B., Acting Director of University Extension Division.
EDGAR H. S. BAILEY,* Ph. D., Professor of Chemistry and Metallurgy.
LUCIUS E. SAYRE, Ph. M., Professor of Pharmacy.
FRANK W. BLACKMAR, Ph. D., Professor of Sociology.
CHARLES G. DUNLAP, Litt. D., Professor of English Literature.
EDWIN M. HOPKINS, Ph. D., Professor of Rhetoric and English Language.
FRANK H. HODDER, Ph. M., Professor of American History and Political Science.
ERASMUS HAWORTH, Ph. D., Professor of Geology and Mineralogy.
ARTHUR T. WALKER, Ph. D., Professor of Ancient Languages and Literatures.
WILLIAM C. STEVENS, M. S., Professor of Botany.
ARVIN S. OLIN, A. M., LL. D., Professor of Education.
EUGENIE GALLOO, A. M., Professor of Romance Languages and Literatures.
WILLIAM H. JOHNSON, A. M., Professor of Education.
JAMES NAISMITH, A. B., Professor of Physical Education.
SAMUEL J. HUNTER, A. M., Professor of Entomology.
P. F. WALKER, M. M. E., Professor of Mechanical Engineering.
L. D. HAVENHILL, Ph. M., Professor of Pharmacy.
FREDERICK E. KESTER, Ph. D., Professor of Physics.
GEORGE C. SHAAD, B. S., E. E., Professor of Electrical Engineering.
SAMUEL J. CRUMBINE, M. D., Professor of Preventative Medicine.
HERBERT A. RICE, C. E., Professor of Civil Engineering.
BENNET M. ALLEN, Ph. D., Professor of Zoölogy.
EDMUND H. HOLLANDS, Ph. D., Professor of Philosophy.
GOLDWIN GOLDSMITH, Ph. B., Professor of Architecture.
WILLIAM A. MCKEEVER, Ph. M., Head of the Department of Child Welfare.
CLEMENT C. WILLIAMS, B. S., C. E., Professor of Railway Engineering.
ELMER F. ENGEL, A. M., Professor of German.
ARTHUR MACMURRAY, A. B., M. O., Professor of Public Speaking.
ELIZABETH C. SPRAGUE, Professor of Home Economics.
RAYMOND A. SCHWEGLER, A. M., Professor of Education.
ARTHUR J. BOYNTON, A. M., Professor of Economics.
CHARLES H. ASHTON, Ph. D., Professor of Mathematics.
HARRY C. THURNAU, Ph. D., Professor of Germanic Languages and Literatures.
FREDERICK J. KELLY, Ph. D., Professor of Education.
LEON N. FLINT, A. B., Professor of Journalism.
FREDERICK H. SIBLEY, M. E., Professor of Mechanical Engineering.
-

* Absent on leave.

- ARTHUR L. OWEN, A. M., Professor of Hispanic Languages.
 CLINTON M. YOUNG, E. M., Professor of Mining Engineering.
 WALTER R. SMITH, Ph. D., Professor of Sociology.
 CHESTER A. BUCKNER, Ph. D., Professor of Education.
 HERMAN C. ALLEN, Ph. D., Professor of Chemistry.
 SELDEN L. WHITCOMB, Litt. D., Professor of Comparative Literature.
 RAYMOND C. MOORE, Ph. D., Professor of Geology and Paleontology.
 MILES W. STERLING, A. M., Associate Professor of Greek.
 HANNAH OLIVER, A. M., Associate Professor of Latin.
 MARTIN E. RICE, M. S., Associate Professor of Physics.
 GEORGE J. HOOD, B. S., Associate Professor of Mechanical Drawing.
 WILLIAM J. BAUMGARTNER, A. M., Associate Professor of Zoölogy.
 HENRY O. KRUSE, A. M., Associate Professor of German.
 CLARENCE C. CRAWFORD, Ph. D., Associate Professor of European History.
 CHARLES A. HASKINS, B. S., Associate Professor of Sanitary Engineering.
 MARGARET LYNN, A. M., Associate Professor of English Literature.
 HENRY C. ALLEN, A. M., Associate Professor of Chemistry.
 WILLIAM C. MCNOWN, B. S., Associate Professor of Civil Engineering.
 ALFRED H. SLUSS, B. S., Associate Professor of Mechanical Engineering.
 HUBERT W. NUTT, Ph. B., Associate Professor of Education.
 HERBERT B. HUNGERFORD, Ph. D., Associate Professor of Entomology.
 RALPH E. CARTER, A. M., Associate Professor of Education.
 BLAINE F. MOORE, Ph. D., Associate Professor of Political Science.
 WILLIAM M. DUFFUS, A. M., Associate Professor of Economics.
 FRANCIS E. JOHNSON, A. B., E. E., Associate Professor of Electrical Engineering.
 RAYMOND C. MOORE, Ph. D., Associate Professor of Geology.
 JOHN ISE, Ph. D., Associate Professor of Economics and Commerce.
 DINSMORE ALTER, Ph. D., Associate Professor of Astronomy.
 RICHARD L. GRIDER, E. M., Associate Professor of Mining.
 WARD W. SULLIVAN, A. M., Associate Professor of History in Extension Division.
 CHARLES M. STERLING, A. B., Assistant Professor of Pharmacognosy.
 EDWIN F. STIMPSON, B. S., Assistant Professor of Physics.
 FRANK E. JONES, Assistant Professor of Engineering Drawing.
 HERBERT E. JORDAN, Ph. D., Assistant Professor of Mathematics.
 WILLIAM R. B. ROBERTSON, Ph. D., Assistant Professor of Zoölogy.
 GRACE M. CHARLES, Ph. D., Assistant Professor of Botany.
 JACOB O. JONES, Ph. B., Assistant Professor of Hydraulics.
 JOSEPHINE M. BURNHAM, Ph. D., Assistant Professor of English.
 AMIDA STANTON, A. M., Assistant Professor of Romance Languages.
 FRANCIS ELLIS JOHNSON, A. B., E. E., Assistant Professor of Electrical Engineering.
 HELEN M. CLARKE, Ph. D., Assistant Professor in Correspondence-Study.
 MAXWELL FERGUSON, A. M., LL. B., Assistant Professor Economics and Commerce.
 ELIZABETH C. MEGUIAR, Assistant Professor in Home Economics.
 WALTER D. BODENHAFFER, A. M., Assistant Professor of Sociology.
 THOMAS J. SMART, A. M., Assistant Professor of Education in Extension Division.

JOSE M. ALBALADEJO, A. B., Assistant Professor of Hispanic Languages.
ALBERT A. LONG, A. M., Head of the Municipal Reference Bureau.
SARA G. LAIRD, A. M., Instructor in Rhetoric.
CAROLYN B. SPANGLER, A. B., Instructor in German.
ESTHER L. SWENSON, A. M., Instructor in Rhetoric.
HAZEL PRATT, A. B., Instructor in Physical Education.
W. A. DILL, A. B., Instructor in Journalism.
BESSIE DOUTHITT, Instructor in Zoölogy.
ETHEL VAUGHN, A. B., Instructor in Correspondence-Study.
AGNES A. MURRAY, A. M., Instructor in Chemistry.
MARION LEWIS, Instructor in Journalism.
J. NEALE CARMAN, A. B., Instructor in Romance Languages.
ALVA C. ELLISOR, A. B., Instructor in Geology.
EUGENIA W. PARKER, A. B., Instructor in Correspondence-Study.
FLORENCE M. CATE, A. M., Instructor in Romance Languages.
JESSIE A. CLINE, B. S., Instructor in Domestic Science.
ORA L. WEBB, A. B., Instructor in Domestic Science.
NATHAN H. HOFFMAN, A. B., Instructor in Hispanic Languages.
MILLIE MANN, A. M., Assistant Registrar and Instructor in Correspondence-Study.

THE UNIVERSITY EXTENSION DIVISION.

The University Extension Division consists of four departments: correspondence-study, general information, municipal reference, child welfare.

NOTE.—Bulletins giving detailed information in regard to each of these departments will be sent on request.

THE DEPARTMENT OF CORRESPONDENCE-STUDY.

PURPOSE.

The purpose of the department of correspondence-study is to assist those who have not been able to secure a higher education through the regular channels, either to inform themselves on some particular subject or to prepare for College work in residence.

HISTORY.

In 1891 university extension had its beginning at the University of Kansas in courses of lectures, both informational and cultural, given at various points in the state by University professors. The idea of extending the University's usefulness was further developed in 1903 by the opening of a Summer Session. The establishment, in 1909, of the correspondence-study department of the University Extension Division was the final step in the effort to make the University serve in every way possible the educational needs of the state.

GRADES OF WORK OFFERED.

Most of the work offered is of university grade, but certain high-school courses are provided, and the number of vocational courses is being increased.

THE SYSTEM.

PROCEDURE. The student who wishes to undertake correspondence-study should first select such course or courses as he may desire to take, and should fill out the blank with all the information called for, returning it with the required fee to the office of the Extension Division.

THE INSTRUCTION. If the application is approved, the first lesson will be sent, with instructions for study and methods of preparation, and directions for returning lesson sheets and reports. Each lesson will be returned to the student, with such corrections, explanations, and suggestions as may be needed. Lists of books, assignments for reading, and all necessary assistance will be furnished throughout the course, so that no student will be left without adequate aid and guidance. Questions on the subject in hand are at all times encouraged.

Each assignment contains questions to test the student's method of work as well as his understanding of the ground covered. After preparing for recitation the student writes his answers to the questions and returns them, together with a statement of any difficulties which may have arisen during his study.

BY WHOM PREPARED. These courses are prepared by the members of the University faculty, and each represents a definite amount of work, corresponding to an equivalence of work done in residence at the University or in the standardized schools of our educational system.

THE UNIT COURSE. The unit course is divided, where practicable, into forty assignments, representing a five-hour course in residence. Such a course represents at least an amount of work equal to that done in residence at the University in a study of five full recitation-hours per week for one semester or half year. It is assumed that this work may be done by the average student in forty weeks, with a minimum leisure for study of one hour per day, six days in the week. It is, however, the student's privilege to pursue his studies as rapidly as he is able. Shorter courses are ordinarily divided into fifths of the unit course of forty assignments, corresponding to three-hour, two-hour, or one-hour courses in resident work at the University. A three-hour course in residence, then, would be covered by correspondence teaching in twenty-four assignments, and shorter courses in proportion. Two assignments in correspondence approximately cover the ground in quantity of a week's work in residence.

EXAMINATIONS. Examinations are optional with the student, but are required where credits are sought. These examinations must be taken either at the University or under conditions approved by the University. In the latter case, arrangements may often be made with the local superintendent of schools to conduct the examination.

GENERAL REGULATIONS.

1. Students may begin correspondence courses at any time during the year, but the department cannot guarantee that all courses will be given during the summer months.

2. For admission to the correspondence-study department no preliminary examination is required. The student is required to fill out an application blank giving such information as may be helpful in adapting the instruction to the personal needs of each student.

3. Students who undertake correspondence-study work for University credit must state this fact in advance and comply with all the requirements of the University.

4. For the benefit of the department it is desired that the applicant state fully the purpose he has in view in taking the work, and also in detail such educational advantages, training or experience as he may have had. The department endeavors to meet the needs of the individual student by advice and suggestions, as well as by formal instruction, but whenever it finds that the course elected is not for the best interests of the student, it reserves the right to reject the application, or to advise change or discontinuance.

5. Correspondence students will be expected to complete a unit course within twelve months from the time of enrollment.

6. During an instructor's vacation a substitute will be provided to carry on such course or courses, if possible, or the time for completing the course will be extended.

7. No fee is refunded because of a student's inability to enter upon or pursue a course for which he has once registered. If an application for instruction is rejected the fee is returned.

8. Each correspondence course is equivalent to the corresponding residence course and commands credit unless definite statement is made to the contrary.

9. Not more than two courses may be carried through correspondence-study at one time. Each subject listed under the various departments is a course; for example: first-year English is one course, German I is one course.

10. All courses offered by the correspondence-study department,

whether taken for University credit or not, are on a uniform basis in reference to the amount of work covered. Courses which are satisfactorily completed have, therefore, a definite value, and all students who successfully complete such courses will be awarded certificates of the grade in which the work is taken.

11. Combinations of correspondence-study and the residence work of the Summer Session are possible and recommended.

UNIVERSITY CREDIT.

1. Persons who seek a University degree must conform to all the requirements exacted by the college or school in which such degree is sought. A maximum of one-half the required credits for the A. B. degree may be accumulated through correspondence. The work of the earlier part of the course is more likely to be available for correspondence-study. The last thirty hours must be taken in residence.

2. University credit can be granted only to students who have met the entrance requirements of the University. Students enrolling for credit must meet the prerequisite conditions for each course. This regulation may be waived by the instructor for a student enrolling not for credit. Upon satisfactory completion of a correspondence course designed for credit, the student will be awarded a certificate of credit in the University. Other students' grades will be recorded merely in the files of the department and certificates issued for the same.

3. Upon completion of all the assignments of any correspondence-study course for University credit the student shall pass an examination held under the direction of the instructor giving such course, or by some one designated by the University for that purpose.

4. Work taken for credit may not be done by any student while in attendance at any institute of learning.

5. Admission credit is given for courses covering college entrance requirements which are satisfactorily completed and passed by examination.

6. University credit is given for courses of college grade satisfactorily completed and passed by examination.

7. If the student has a record of residence work in the University, credits gained from correspondence courses are immediately transferred to that record; if not, they are held in the correspondence-study department until the student secures such a record covering one year of study in residence.

SPECIAL ENGINEERING REGULATIONS.

1. Not more than one-fourth of the number of unit hours of credit required for graduation in any engineering department may be obtained through correspondence-study.

2. Not more than seven hours of credit in sequence in courses which are interdependent may be obtained through correspondence.

3. A failure in any branch in residence may not be made up through correspondence.

STUDY CLUBS.

It may sometimes happen that women's clubs, business men's clubs, debating clubs, Y. M. C. A. classes, or any of the numerous organizations of men and women for mutual help, encouragement, and stimulation, may wish to pursue correspondence-study as a class or study group. In such instances the individual members can enroll in the same courses, working out their lesson assignments and sending them in regularly. Then the club or study group can meet once a week or oftener for the discussion of

difficult points and for coöperative study. The advantages of such a plan are very great, since the stimulus of companionship and mutual help goes far to overcome the tendency to discouragement, lethargy, and failure encountered in solitary study. Such coöperative study also makes possible occasional personal visits and class instruction from University professors, in addition to correspondence instruction. This manner of procedure is recommended for labor unions, professional associations of all sorts, and church brotherhoods.

UNIVERSITY EXTENSION CLASSES.

Where a group of fifteen or more students make application, arrangements will be made, when possible, for the organization of an extension class to meet for a two-hour period, under the direction of a member of the University faculty. Classes conducted for a term of fifteen weeks provide two hours University credit; classes arranged for a longer term provide proportionately greater credit. Where local conditions demand, the fifteen meetings may be so arranged as to cover a longer or shorter period of time, the total number of recitation hours and credit remaining the same.

The tuition for each student enrolling for any one class is \$5 for a two-hour course; for classes providing more credit, the tuition is proportionately higher.

For a fee of \$15 per year the student may enroll for as many classes as may be available, no more than two classes, however, to be pursued at the same time.

The Extension Division cannot guarantee to supply all demands of this nature, but will do so as far as the time of the instructors and the facilities permit.

EXPENSES.

FEES. The cost of correspondence instruction for residents of Kansas is an incidental fee of \$10 a year, or \$15 for nonresidents. For this amount the student is entitled to tuition for a calendar year, and during that period he may carry two courses at a time, a course being each separately numbered and listed branch in this bulletin. The incidental fee must be paid each year that the student reënrolls for study. If a correspondence student should later come into residence at the University he would then be required to pay the \$5 matriculation fee.

LABORATORY AND SHOP FEES. Students are required to pay the actual cost of material of all kinds used in laboratories and shops. In some departments a definite fee to cover cost of materials in a given course is fixed prior to the opening of each term. Such fees are payable at the office of the chief clerk at the time of enrollment and before beginning the student secures, at cost, material and apparatus as needed.

BOOKS AND OUTFIT. All necessary textbooks, drawing outfits, apparatus, dissecting material, chemicals, etc., are extra, and must be procured by the student. The student also pays postage on lessons one way.

PAYMENTS. The incidental fee may be paid in monthly installments of five dollars when the student finds it necessary. In this plan the general rule of payment in advance applies. No extra charge is exacted for a course where payments are made by installments. *But in every case at least five dollars of the required fees must accompany the application.*

HOW TO REMIT. Money should be sent in the form of postal or express money order, or Kansas City or Chicago draft, made payable to the University of Kansas. Mail to the University Extension Division, Lawrence, Kan.

THE COST ANALYZED. No effort is made to put the fees of the correspondence-study department or of the University Extension Division on a money-making basis. The effort is rather to put the fees upon the

lowest operating basis. In fact, the fees for the whole University and for every department and division thereof have been fixed by legislative enactment, and are not subject to change or modification by the University authorities. The fees for the correspondence-study department are therefore practically the same as those exacted from students in residence. The motive is public service.

TRAVELING LIBRARIES. In some of the courses offered through correspondence the collection of books of reference for collateral and supplementary reading required is so extensive that it would be a hardship on many persons to be compelled to buy them, and yet they are books used for regular reference in the University library by students taking the same courses in residence, and are essential for a proper grasp of the subject matter. To obviate this difficulty, an arrangement has been made with the State Traveling Libraries Commission at Topeka to furnish these reference books in loan libraries of five to twelve volumes, a separate library for each of such courses. A library covering the work of a certain course may thus be obtained and used by the student under the following conditions:

First. That a fee of one dollar and express both ways be charged.

Second. That the books may be kept six months.

Third. That the student retaining books over six months shall pay an extension fee of twenty-five cents per month.

The courses which need traveling libraries may be learned on application.

THE DEPARTMENT OF GENERAL INFORMATION.

The department of general information of the Extension Division of the University of Kansas has been organized with the purpose of making knowledge more generally available to the people of Kansas. It coöperates with the schools and women's clubs, civic clubs, debating societies, and other similar organizations, and furnishes any available information to citizens of Kansas upon subjects of general interest. The department also issues bulletins on public questions.

LECTURES.

For several years the University of Kansas, through its Extension Division, has arranged for lectures by members of the University faculty in the different towns in the state.

Single lectures are offered for entertainment, information, and culture; but the department wishes to emphasize the courses or series of lectures which may be offered to serious-minded students as affording, at least approximately, the intellectual discipline and information and cultural value of regular University work in residence.

Musicals and concerts by members of the fine arts Faculty and by musicians outside of the University faculty are also offered. When possible, a course consisting of lectures or a combination of lectures and concerts will be arranged for any town in the state desiring this service.

A bulletin descriptive of the single lectures, courses of lectures, commencement addresses, and musicals offered to Kansas communities will be sent to any address on request.

WOMEN'S CLUBS.

This department offers assistance to any club as an organization or to the individual members. Outlines have been made that will enable clubs to make a comprehensive study of the subjects treated. These outlines are sent out as a loan for two weeks.

Wherever information upon a given topic is available it will be sent on request to individual club members.

PACKAGE LIBRARIES.

Package libraries giving information on subjects of current popular interest are sent out on request and may be retained for a period of two weeks.

LANTERN SLIDES.

Lantern slides designed to supplement instruction in schools, aid libraries and clubs in their educational work, and provide material for lectures and entertainment for various groups of people in the state, can be secured through the Extension Division of the University of Kansas.

Each set of slides is accomplished by a typewritten or printed lecture. These lectures can be supplied in duplicate and furnished in advance of the time for using the slides in order that the person who is to present the lecture may be entirely familiar with the slides and their description.

EDUCATIONAL MOTION-PICTURE FILMS.

About one hundred and forty-five educational motion-picture films are now available for the schools and community organizations in Kansas.

DEBATING AND PUBLIC DISCUSSION.

The department has issued a bulletin on debating, and each year issues a bulletin containing references on the question to be argued by the Kansas High School Debating League. It stands ready to assist with references or collected material any other organization interested in debate.

PLAY SERVICE.

In order to assist high-school teachers and amateur dramatic clubs in securing good plays quickly, and without too great an expense, the Extension Division has inaugurated a Play Service Bureau. Upon request this Bureau will recommend and send three or four plays as a three days' loan. Recitations suitable for county contests are sent as a one-week loan.

THE DEPARTMENT OF MUNICIPAL REFERENCE.

The municipal reference department, established in 1910, endeavors to do for city officials and citizens what a legislative reference library does for state legislators, the department acting as a clearing-house for information and ideas concerning municipal problems, such, for example, as those connected with public utilities, franchises, municipal legislation and ordinances, sanitation, city planning, public improvements, uniform accounting, etc.

The experience of cities of Kansas and other states is brought together and analyzed, and the results placed at the service of the municipalities of this state. Copies of model city ordinances and regulations on many municipal subjects are kept on file and furnished on request of city officers and citizens.

The coöperation of faculties of the College, the School of Engineering, and the School of Law enables the department to serve effectively as an information bureau for the benefit of the people of the municipalities of the state.

The League of Kansas Municipalities, organized in connection with the municipal reference department, is made up of Kansas cities, the

officials of which meet each year in three days' convention for the discussion of municipal problems and the interchange of ideas on city administration and legislation. The proceedings of the convention are printed in *Kansas Municipalities*, the monthly publication of the League, established December, 1914. One hundred and fifty-six Kansas cities and towns were members of the League in the year 1919-'20.

THE DEPARTMENT OF CHILD WELFARE.

The department of child welfare undertakes to render service to the state in certain definite matters listed below.

1.—CHILD WELFARE CLUBS. The department will coöperate with local communities in the formation of parent-teacher associations, mothers' clubs, and other such child-fostering organizations.

2.—PLAY ACTIVITIES. The department is interested in the organization and promotion of municipal playgrounds, the establishment of neighborhood centers, and the equipment of the home with suitable play apparatus. Plans for the foregoing will be offered by correspondence.

3.—VACATION INDUSTRY. The department will offer a definite plan to provide wholesome, cultural vacation industry for the children—home and school gardening, and the like—and to make this effort a part of a larger program, including directed play and sociability.

4.—CIVIC AND SOCIAL CENTERS. The department will assist in the organization of civic and social centers. It will draw up plans for the establishment of community halls, social-center buildings, or other places wherein the children and young people may enjoy the advantages of wholesome entertainment for the leisure and recreational hours.

5.—PATRIOTIC SERVICE FOR THE YOUNG. The department will coöperate with all those interested in the patriotic service of the young—the Junior Red Cross, juvenile thrift, food conservation, the patriotic activities of the Boy Scouts, and the like.

6.—INDIVIDUAL ADVICE. The department offers individual advice to parents, and to those who wish to make preparation for child-welfare work.

7.—POSTER EXHIBITS. The department is prepared to furnish plans and specifications for a local juvenile-welfare campaign by means of poster and placard exhibits and window displays.

COURSES OF INSTRUCTION.

ASTRONOMY.

1.—DESCRIPTIVE ASTRONOMY. Twenty-four assignments, three hours College credit.

BOTANY.

1.—ELEMENTARY BOTANY. Forty assignments, five hours College credit.

2.—GENERAL MORPHOLOGY OF PLANTS. Forty assignments, five hours College credit.

3.—PLANT HISTOLOGY. Forty assignments, five hours College credit.

CHEMISTRY.

1.—ELEMENTARY CHEMISTRY. Forty assignments, five hours College credit.

2.—SANITARY AND APPLIED CHEMISTRY. Forty assignments, five hours College or Engineering credit.

3.—QUANTITATIVE ANALYSIS. Forty assignments, five hours College or Engineering credit.

4.—A SPECIAL COURSE IN CHEMICAL WATER ANALYSIS. Part I, forty assignments, five hours College credit. Part II, twenty assignments, two and one-half hours College credit.

5.—QUALITATIVE ANALYSIS. Forty assignments, five hours College or Engineering credit.

6.—CHEMISTRY OF FOOD PRODUCTS. Forty assignments, five hours College credit.

7.—FOOD ANALYSIS. Twenty-four assignments, three hours College credit.

ECONOMICS AND COMMERCE.

1.—ELEMENTS OF ECONOMICS. Forty assignments, five hours College credit.

2.—BANKING. Twenty-four assignments, three hours College credit.

3.—LABOR PROBLEMS. Twenty-four assignments, three hours College credit.

4.—LIFE INSURANCE. Sixteen assignments, two hours College credit.

5.—COMMERCIAL GEOGRAPHY. Twenty-four assignments, three hours College credit.

ACCOUNTING. See courses for the retail merchant on the last page of this announcement.

EDUCATION.

1.—HISTORY OF ANCIENT AND MEDÆVAL EDUCATION. Twenty-four assignments, three hours College or Education credit.

2.—HISTORY OF MODERN EDUCATION. Twenty-four assignments, three hours College or Education credit.

3.—PRINCIPLES OF EDUCATION. Twenty-four assignments, three hours College or Education credit.

4.—EDUCATIONAL ORGANIZATION AND ADMINISTRATION. Twenty-four assignments, three hours College or Education credit.

5.—SCHOOL HYGIENE. Twenty-four assignments, three hours College or Education credit.

6.—EDUCATIONAL PSYCHOLOGY. Twenty-four assignments, three hours College or Education credit.

7.—SCHOOL MANAGEMENT. Twenty-four assignments, no credit.

8.—METHODS OF TEACHING. Twenty-four assignments, three hours College or Education credit.

9.—HIGH SCHOOL ADMINISTRATION. Twenty-four assignments, three hours College or Education credit.

10.—ELEMENTARY EDUCATION. Twenty-four assignments, three hours College or Education credit.

ENGINEERING.

1.—FREE-HAND AND MECHANICAL DRAWING. Twenty-four assignments, three hours Engineering credit.

2.—MACHINE DRAWING. Twenty-four assignments, three hours Engineering credit.

3.—ELEMENTARY MECHANICS. Not for credit. Sixteen assignments.

4.—MECHANISM AND MACHINE DESIGN. Not for University credit. Twenty assignments.

5.—HIGHWAY ENGINEERING. Sixteen assignments, two hours Engineering credit.

6.—ENGINES AND BOILERS. Twenty-four assignments, three hours Engineering credit.

12.—COAL MINING. Credit may be given to students having sufficient preparation. Forty assignments, five hours Engineering credit.

For additional mining courses, see announcement of courses 50 to 60.

*14.—ELEMENTARY MINERALOGY. Forty assignments, five hours College or Engineering credit.

*15.—GENERAL GEOLOGY. Forty assignments, five hours College or Engineering credit.

19.—REINFORCED CONCRETE. May be taken only by students of advanced standing and graduate engineers. Twenty-four assignments, three hours Engineering credit.

20.—ARCHITECTURAL DRAWING. Three hours Engineering credit will be given, provided the work of five assignments is done at the University under personal instruction. Part I, twenty assignments; part II, twenty assignments.

23.—WORKS MANAGEMENT. May be taken for engineering credit by students who have done a sufficient amount of work to give them standing with the Junior class. Sixteen assignments, two hours Engineering credit.

24.—PLANE SURVEYING. When accompanied by field work of a satisfactory nature Engineering credit will be given. Forty assignments, five hours Engineering credit.

25.—RAILWAY SURVEYING. Forty assignments, five hours Engineering credit.

25a.—RAILWAY DRAWING. Twenty-four assignments, one hour Engineering credit.

26.—HYDRAULICS. Twenty-four assignments, three hours Engineering credit.

* See, also, courses 1 and 2 under Mineralogy and Geology.

Vocational Courses.

(University credit is not given.)

- 1.—SHOP MATHEMATICS. Forty assignments.
- 2.—DRAWING. Twenty-four assignments.
- 3.—MACHINE DRAWING. Twenty-four assignments.
- 4.—ARCHITECTURAL DRAWING. Twenty assignments.
- 10.—ELEMENTS OF CHEMISTRY. Ten assignments.
- 11.—MATERIALS OF MACHINE CONSTRUCTION. Ten assignments.
- 17.—THE ELEMENTS OF TELEPHONY. Twenty-four assignments.
- 20.—STEAM ENGINEERING. Twelve assignments.
- 21.—GAS, GASOLINE, AND OIL ENGINES. Ten assignments.
- 29.—DIRECT CURRENT ELECTRICITY. Twenty assignments.
- 30.—ALTERNATING CURRENT ELECTRICITY. Twenty assignments.
- 31.—SWITCHBOARD AND CONTROLLING DEVICES. Ten assignments.
- 32.—ELEMENTS OF ILLUMINATION. Twenty assignments.
- 50.—MINE SURVEYING OR MINE ENGINEERING. Forty assignments.
- 51.—MINE ACCIDENTS: CAUSES AND PREVENTION. Fifteen assignments.
- 52.—GENERAL MINING. Twenty assignments.
- 53.—ORE DRESSINGS: CONCENTRATION OF ORES. Twenty assignments.
- 54.—EXPLOSIVES. Ten assignments.
- 55.—VENTILATION OF MINES. Ten assignments.
- 56.—COAL MINING. Twenty assignments.
- 56X.—COMBINED COURSE FOR INSPECTORS AND MINE FOREMEN. Forty assignments.
- 58.—ORIGIN AND OCCURRENCE OF SALT. Ten assignments.
- *60.—FIRST AID AND RESCUE WORK.

ENGLISH.

- 1.—RHETORIC AND ENGLISH COMPOSITION. Forty assignments, five hours College or Engineering credit.
- 2.—NARRATION AND DESCRIPTION. Forty assignments, five hours College credit.
- 3.—ENGLISH LITERATURE. Forty assignments, five hours College credit.
- 4.—HISTORY OF ENGLISH LITERATURE. Forty assignments, five hours College credit.
- 5.—ENGLISH LITERATURE OF THE EIGHTEENTH CENTURY. Forty assignments, five hours College credit.
- 7.—AMERICAN LITERATURE. Twenty-four assignments, three hours College credit.
- 8.—VICTORIAN LITERATURE. Forty assignments, five hours College credit.
- 9.—HISTORY OF THE ENGLISH DRAMA. Twenty-four assignments, three hours College credit.
- 10.—BROWNING. Twenty-four assignments, three hours College credit.
- 11.—MODERN ENGLISH GRAMMAR. Sixteen assignments, two hours College credit.

* Since this work will be carried out in coöperation with the Federal bureau officials, it will be necessary to conform to the schedules of the car, and the instruction will be given by special arrangement instead of by the regular method of fixed assignments.

12.—ELIZABETHAN DRAMA (EXCLUSIVE OF SHAKSPERE). Twenty-four assignments, three hours College credit.

ENTOMOLOGY.

1.—INTRODUCTORY ENTOMOLOGY. Forty assignments, five hours College credit.

2.—SYSTEMATIC ENTOMOLOGY. Sixteen assignments, two hours College credit.

3.—APPLIED ENTOMOLOGY. Sixteen assignments, two hours College credit.

4.—THE ROLE OF INSECTS IN THE SPREAD OF DISEASE. Not for University credit. Sixteen assignments.

GERMAN.

1.—GERMAN I. Forty assignments, five hours College or Engineering credit.

2.—GERMAN II. Forty assignments, five hours College credit.

3.—GERMAN III. Forty assignments, five hours College credit.

4.—GERMAN IV. Forty assignments, five hours College credit.

5.—WALLENSTEIN. Twenty-four assignments, three hours College credit.

6.—GERMAN COMPOSITION. Sixteen assignments, two hours College credit.

7.—GOETHE'S FAUST (Parts I and II). Twenty-four assignments, three hours College credit.

8.—THE CLASSIC DRAMA. Forty assignments, five hours College credit.

9.—(GERMAN 8 AND 9.) SCHILLER'S BRAUT VON MESSINA. Sixteen assignments, two hours College credit.

10.—IPHIGENIE AND NATHAN DER WEISE. Twenty-four assignments, three hours College credit.

GREEK.

1.—ELEMENTARY GREEK. Forty assignments, five hours College credit.

2.—XENOPHON'S ANABASIS. Forty assignments, five hours College credit.

3.—HOMER'S ILIAD. Twenty-four assignments, three hours College credit.

HIGH-SCHOOL BRANCHES.

The high-school work now offered is as follows:

ENGLISH:

First year	(40 assignments) one unit.
Second year	(40 assignments) one unit.
Third year	(40 assignments) one unit.
Fourth year	(40 assignments) one unit.
American Literature	(20 assignments) one-half unit.
English Grammar	(20 assignments) no credit.

LATIN:

Beginning	(40 assignments) one unit.
Cæsar	(40 assignments) one unit.
Cicero's Orations	(40 assignments) one unit.
Vergil	(40 assignments) one unit.

MATHEMATICS:

Elementary Algebra, Part A.....	(40 assignments) one unit.
Elementary Algebra, Part B.....	(20 assignments) one-half unit.
Plane Geometry	(40 assignments) one unit.
Solid Geometry	(20 assignments) one-half unit.
Plane Trigonometry	(20 assignments) one-half unit.

GERMAN:

First year	(40 assignments) one unit.
Second year	(40 assignments) one unit.
Third year	(40 assignments) one unit.

HISTORY:

Ancient	(40 assignments) one unit.
Medieval and Modern	(40 assignments) one unit.
English	(40 assignments) one unit.
American	(40 assignments) one unit.

FRENCH:

First year	(40 assignments) one unit.
Second year	(40 assignments) one unit.

SPANISH:

First year	(40 assignments) one unit.
Second year	(40 assignments) one unit.

PSYCHOLOGY	(20 assignments) one-half unit.
------------------	---------------------------------

HISTORY AND POLITICAL SCIENCE.

- 1.—AMERICAN HISTORY. Forty assignments, five hours College credit.
- 2.—ENGLISH HISTORY. Forty assignments, five hours College credit.
- 6.—MODERN EUROPEAN HISTORY Twenty-four assignments, three hours College credit.
- 3.—AMERICAN GOVERNMENT. Forty assignments, five hours College credit.
- 4.—MUNICIPAL GOVERNMENT. Twenty-four assignments, three hours College credit.
- 5.—MUNICIPAL PROBLEMS Sixteen assignments, two hours College credit.

HOME ECONOMICS.

- 1.—HOME DECORATION. Sixteen assignments, two hours College credit.
- 2.—FOOD AND NUTRITION. Twenty-four assignments, three hours College credit.
- 3.—PUBLIC ASPECTS OF THE HOUSEHOLD. Twenty-four assignments, three hours College credit.
- 4.—HOME NURSING. Twenty-four assignments, three hours College credit.

JOURNALISM.

- 1.—THE THEORY AND PRACTICE OF ADVERTISING. Twenty-four assignments, three hours College credit.
- 2.—THE NEWSPAPER. Twenty-four assignments, three hours College credit.
- 3.—THE SHORT STORY Twenty-four assignments, three hours College credit.
- 4.—NEWSPAPER II.—ADVANCED COURSE. Twenty-four assignments, three hours College credit.
- 5.—PRINTING AND NEWSPAPER COST. Eight assignments, not for credit.
- 6.—RETAIL ADVERTISING. See courses for retail merchant, page twenty-one.

LATIN.

- 1.—ELEMENTARY LATIN Forty assignments, one unit of entrance credit, or five hours College credit.
- 2.—CÆSAR. Forty assignments, one unit of entrance credit, or five hours College credit.

3.—CICERO'S ORATIONS. Forty assignments, one unit of entrance credit, or five hours College credit.

4.—VERGIL'S ÆNEID. Forty assignments, one unit of entrance credit, or five hours College credit.

5.—PREPARATORY PROSE COMPOSITION Twenty-four assignments, no credit.

6.—CICERO'S DE SENECTUTE, AND PROSE COMPOSITION. Twenty-four assignments, three hours College credit.

7.—HORACE'S ODES. Twenty-four assignments, three hours College credit.

8.—PROSE COMPOSITION. Sixteen assignments, two hours College credit.

MATHEMATICS.

I.—College and University Grade.

5.—PLANE TRIGONOMETRY. Sixteen assignments, two hours College or Engineering credit.

6.—COLLEGE ALGEBRA. Twenty-four assignments, three hours College or Engineering credit.

6a.—COLLEGE ALGEBRA. Forty assignments, five hours College or Engineering credit.

7.—ANALYTIC GEOMETRY. Thirty-two assignments, four hours College or Engineering credit.

8.—DIFFERENTIAL CALCULUS. Twenty-four assignments, three hours College credit.

8E.—DIFFERENTIAL AND INTEGRAL CALCULUS. Forty assignments, five hours Engineering credit.

9.—INTEGRAL CALCULUS. Twenty-four assignments, three hours College or Engineering credit.

II.—Special Course in Mathematics.

1. (VOCATIONAL) SHOP MATHEMATICS. No University credit. Forty assignments.

MINERALOGY AND GEOLOGY.

1.—ELEMENTARY MINERALOGY. Forty assignments, five hours College or Engineering credit.

2.—GENERAL GEOLOGY. Forty assignments, five hours College or Engineering credit.

PHARMACY.

Pharmaceutical Chemistry.

A I.—Elementary Pharmacy Physics and Pharmacy Inorganic Chemistry. Twenty assignments.

A II.—Organic Pharmacy Chemistry, including a discussion of the organic chemicals of pharmaceutical interest. Should follow course A I. Twenty assignments.

Materia Medica.

B I.—Pharmacognosy with Botanical Introduction. Ten assignments.

B II.—A brief outline of Physiology and introduction to the subject of Materia Medica. Ten assignments.

B III.—Pharmacological and Therapy Dynamics. Fifteen assignments.

B IV.—Toxicology and Posology. Five assignments.

Pharmacy.

C I.—Descriptive Pharmacy. Terms, processes, and apparatus used in pharmalcal operations. Seven assignments.

C II.—Metrology, Specific Gravity, and Pharmaceutical Arithmetic. Eight assignments.

C. III.—Official Pharmacy. The pharmaceutical classification of medicines. Five assignments.

C IV.—Official Pharmacy. A critical discussion of the pharmaceutical preparations. Fifteen assignments.

C V.—Pharmacy Latin and Principles of Prescription Writing. Three assignments.

C VI.—Pharmaceutical Jurisprudence. Two assignments.

Independent Pharmacy Courses.

1.—INTRODUCTORY PHARMACY. Twenty assignments.

2.—ORGANIC MATERIA MEDICA. Twenty assignments.

PHILOSOPHY.

1.—GENERAL PSYCHOLOGY. Twenty-four assignments, three hours College credit.

2.—LABORATORY PSYCHOLOGY. Sixteen assignments, two hours College credit.

3.—INTRODUCTION TO PHILOSOPHY. Sixteen assignments, two hours College credit.

4.—HISTORY OF ANCIENT PHILOSOPHY. Twenty-four assignments, three hours College credit.

5.—HISTORY OF MEDÆVAL AND MODERN PHILOSOPHY. Twenty-four assignments, three hours College credit.

6.—ETHICS. Forty assignments, five hours College credit.

7.—ELEMENTARY LOGIC. Twenty-four assignments, three hours College credit.

PHYSICAL EDUCATION.

1.—SPORTS AND GAMES. Sixteen assignments, two hours credit, School of Education.

2.—THEORY OF PHYSICAL EDUCATION. Sixteen assignments, two hours College credit.

The following courses do not carry University credit:

3.—ATHLETICS FOR GIRLS.

4.—PRACTICAL GYMNASTICS.

5.—FESTIVALS, PLAYS, AND GYMNASTIC EXHIBITIONS.

PHYSICS.

1.—ELEMENTARY PHYSICS. Twenty-four assignments, three hours College credit.

2.—MECHANICS, HEAT, AND SOUND. Thirty-two assignments, four hours College or Engineering credit.

3.—LIGHT, ELECTRICITY, AND MAGNETISM. Thirty-two assignments, four hours College or Engineering credit.

4.—MECHANICS, SOUND, AND LIGHT. Twenty-four assignments, three hours College credit.

5.—HEAT, ELECTRICITY AND MAGNETISM. Twenty-four assignments, three hours College credit.

6.—THEORY OF ELECTRICITY AND MAGNETISM. Twenty-four assignments, three hours College credit.

PHYSIOLOGY.

1.—ELEMENTARY PHYSIOLOGY. Forty assignments, five hours College credit.

2.—HYGIENE AND SANITATION. Twenty-four assignments, three hours College credit.

PUBLIC SPEAKING.

1.—ORAL INTERPRETATION. Sixteen assignments, two hours College credit.

2.—EXTEMPORE SPEAKING. Sixteen assignments, two hours College credit.

ROMANCE LANGUAGES.

1.—ELEMENTARY FRENCH (Part I.) Forty assignments, five hours College or Engineering credit.

2.—ELEMENTARY FRENCH (Part II.) Forty assignments, five hours College or Engineering credit.

3.—MODERN FRENCH PROSE. Twenty-four assignments, three hours College credit.

4.—FRENCH COMPOSITION. Sixteen assignments, two hours College credit.

5.—SCIENTIFIC FRENCH. Twenty-four assignments, three hours College credit.

6.—FRENCH PROSE AND POETRY. Twenty-four assignments, three hours College credit.

1.—ELEMENTARY ITALIAN. Forty assignments, five hours College or Fine Arts credit.

SOCIOLOGY.

1.—ELEMENTS OF SOCIOLOGY. Twenty-four assignments, three hours College credit.

2.—SOCIAL PATHOLOGY. Sixteen assignments, two hours College credit.

3.—SOCIAL SURVEYS. Sixteen assignments, two hours College credit.

SPANISH.

1.—ELEMENTARY SPANISH (Part I.) Forty assignments, five hours College or Engineering credit.

2.—ELEMENTARY SPANISH (Part II.) Forty assignments, five hours College or Engineering credit.

3.—MODERN SPANISH WRITERS. Twenty-four assignments, three hours College credit.

4.—SPANISH COMPOSITION. Sixteen assignments, two hours College credit.

ZOOLOGY.

1.—INTRODUCTORY ZOÖLOGY. Forty assignments, five hours College credit.

2.—HISTOLOGY. Forty assignments, five hours College credit.

3.—HEREDITY SURVEYS (ZOÖLOGICAL PROBLEMS). Twenty-four to forty-eight assignments, three to six hours College credit.

SPECIAL COURSES.

The following courses, for merchants and others, do not carry University credit:

Courses for the Retail Merchant.

- 1.—RETAIL ADVERTISING. Ten assignments.
- 2.—SALESMANSHIP. Ten assignments.
- 3.—BOOKKEEPING. Twelve assignments.
- 4.—ACCOUNTING PRINCIPLES. Sixteen assignments.

Courses in Law.

- 1.—ELEMENTARY LAW.
- 2.—CONTRACT.
- 3.—AGENCY.
- 4.—TORTS.

COURSE IN HOME HEALTH AND NURSING.

- 1.—HOME HEALTH AND HOME NURSING. Forty assignments, no credit.
 - (a) Home Hygiene and Sanitation. Ten assignments.
 - (b) Personal Health and Family Hygiene. Ten assignments.
 - (c) Common Diseases and Home Care of the Sick. Ten assignments.
 - (d) First Aid, Emergencies, and Minor Illnesses. Ten assignments.
- 2.—PRENATAL HYGIENE AND CHILD HYGIENE. Twenty assignments, no credit.
 - (a) Pregnancy and Childbirth. Ten assignments.
 - (b) Child Development and Child Care. Ten assignments.

Other Special Courses.

- 1.—WATER PURIFICATION. Ten assignments.
- 2.—FIRE PROTECTION. Twelve assignments.
- 3.—GOVERNMENT AND CITIZENSHIP. Twenty-four assignments.

SECTION XII.

Reserve Officers' Training Corps.

(399)

FACULTY.

HAROLD D. BURDICK, Captain Coast Artillery, Professor of Military Science and Tactics.

ASSISTANTS TO THE PROFESSOR OF MILITARY SCIENCE AND TACTICS.

JAMES G. BOYES, Master Engineer, Senior grade.

WILLIAM L. STAPLES, First Sergeant, Engineers.

HAROLD H. ROSS, First Sergeant, Infantry.

JASPER N. WOLFE, Sergeant, Infantry.

HARRY C. LOWERY, Sergeant, Coast Artillery.

(400)

UNIVERSITY OF ILLINOIS LIBRARY

OCT 18 1920

RESERVE OFFICERS' TRAINING CORPS.

PURPOSE.

In February, 1919, the Reserve Officers' Training Corps was established at the University of Kansas for the purpose of preparing college men as reserve officers for the United States army.

COMMISSION GRANTED. The course of study of the military department occupies four years and leads to a commission in the United States Reserve Corps.

REQUIREMENTS FOR ADMISSION TO THE R. O. T. C. Any student enrolled in any department of the University may enroll as a member of the R. O. T. C. unit.

PHYSICAL TRAINING. A military unit is largely dependent for its efficiency upon the physical fitness of the individuals composing it. Physical training, therefore, will form an essential part of military instruction. It will be the policy to encourage and support the physical training given by civilian teachers, thus coöperating with all other effective agencies in an effort to promote a more vigorous American manhood.

EQUIPMENT. The Department of Military Science and Tactics will be equipped with all facilities to carry on courses under four different heads. This equipment is loaned to the University by the United States government and has approximately a value of \$175,000.

UNITS OF SPECIAL ARMS. There are four units of the R. O. T. C. available for any student desiring to enter the courses—infantry, coast artillery, engineers, and signal corps.

CONDITIONS OF SERVICE.

Eligibility to membership in the R. O. T. C. shall be limited to students at institutions in which units of such corps are established, who are citizens of the United States, who are not less than fourteen years of age and whose bodily condition indicates that they are physically fit to perform military duty or will be upon arrival at military age.

No member of the army, navy, or marine corps of the United States or of the National Guard, Naval Militia, or Naval Reserve, or reserve officers of the military or naval forces of the United States, shall be eligible for membership in the R. O. T. C.

COURSE ELECTIVE. Admission to the R. O. T. C. units is entirely elective with the student. Having entered the unit for the basic course, first two years, the student must complete the basic course satisfactorily in order to obtain any credit for any part of the two years.

SUMMER CAMPS. Two summer camps will normally be held, a basic camp and an advanced camp. Attendance at the basic camp is elective. Attendance at the advanced camp is required. Transportation, subsistence, uniform, equipment and medical attendance will be furnished members of R. O. T. C. attending summer camps. Mileage is allowed from the institution to the camp and from the camp to the institution at the rate of 3½ cents a mile.

ELECTION OF COURSES. Students electing R. O. T. C. work do so for two years at a time. The first election is for the two years' basic course, after which, if the student is recommended for further training, he may elect the advanced course for the remainder of his college course.

COMMUTATION OF SUBSISTENCE. Commutation of subsistence, which will be fixed from time to time by the Secretary of War, will be paid to members of the unit who are in the advanced course. In order to be eligible for this subsistence, which now amounts to \$144 a year, a man must have completed his basic course in this or some other accredited unit. This is payable in monthly installments at the rate of \$12 per month throughout the entire year.

OBLIGATION. A student entering the R. O. T. C. unit is not obligated to the government any more than any other student in the University. In order, however, to receive credit for the time spent in the unit, he must complete satisfactorily the course prescribed.

UNIFORMS. A distinctively University of Kansas uniform is prescribed for the members of the R. O. T. C. This uniform can be worn on all occasions. It is of excellent quality and tailor-made. A government allowance of \$18.32 makes the cost of this uniform very small in comparison with the same style and quality of civilian suit. This uniform is not required to be worn at all times. It must be worn to all military classes. Wearing of the uniform otherwise is elective with the student.

CREDITS.

Credit for work in the Reserve Officers' Training Corps courses is given on the following basis: For students of the College the work counts the same as in any professional school up to the maximum of 15 credits. The attention of the prospective student is invited to the fact that for the student to gain credit in the basic course it is necessary to complete two years' work, 2 academic credits for the Freshman year, 4 credits for the Sophomore year, 4 credits for the Junior year, 2 credits for the first semester in Senior year, and 3 credits for the last semester, Senior year; total, 15 hours. The Engineering School allows but 13 credits, since the Junior year permits one hour of R. O. T. C. work to be taken in purely engineer subjects. In the Engineering School, R. O. T. C. may be substituted for modern language, 10 hours, and for elective subjects in Senior year, 3 hours.

DESCRIPTION OF COURSES.

BASIC COURSE FOR ALL ARMS.

FRESHMAN YEAR.

Three (3) hours per week.

1. Subject: Organization.
2. Military courtesy and discipline.
3. Drill. (Close and extended order drill.)
 1. School of soldier.
 2. School of squad.
 3. School of platoon.
 4. Company and battalion ceremonies. Marching.
4. Care and handling of arms and equipment.
5. Small arms firing.
 1. Preliminary instruction.
 2. Pointing and aiming drills.
 3. Sighting drills and exercises.
 4. Gallery practice.
6. Personal hygiene, first aid and sanitation.
7. Interior guard duty.
8. Minor tactics.
 - Advance, flank and rear guards. Outposts.
 - Patrols. Approach marches and deployments. Combat.
9. Morale.
10. Physical training.
11. General.

SOPHOMORE YEAR.

Two (2) hours per week.

1. Organization.
2. Military courses and discipline.
3. Drill. (Close and extended drill.)
 1. School of soldier.
 2. School of squad.
 3. School of platoon.
 4. School of company.
 5. School of battalion.
 6. Ceremonies.
 7. Marching.
4. Care and handling of arms and equipment.
5. Small arms firing.
 1. Preliminary instruction.
 2. Pointing and aiming drills.
 3. Sighting drills.
 4. Gallery practice.
 5. Preliminary instruction, pistol.
 6. Pistol practice.
 7. Musketry.
6. Personal hygiene, first aid and sanitation.
7. Interior guard duty.

8. Minor tactics.
Advance, flank, and rear guards. Outposts.
Patrols. Approach marches and deployments. Combat.
9. Morale.
10. Physical training.
11. Liaison, for all arms.
12. Topography and map reading.
13. Signaling.

ADVANCED COURSE FOR ALL ARMS.

JUNIOR YEAR

Two (2) hours per week.

1. Camp sanitation. Care of troops in the field.
2. Minor tactics.
 1. Advance guards.
 2. Outposts.
 3. Patrols.
 4. Approach marches and deployments.
 5. Combat of small units.
 6. Orders and messages.
 7. Small map problems.
3. Liaison for all arms.
4. Topography.
5. Field Engineering.

Tasks and working parties. Hasty intrenchments.
Obstacles. Material.
6. Law. Common. Military.
7. Military policy.
8. General.

SENIOR YEAR.

Two (2) hours per week.

1. Minor tactics.
 1. Combat of small units.
 2. Scouting and patrolling.
 3. Flank guards.
 4. Detached posts.
 5. Rear guards.
 6. Outposts.
2. Topography.
3. Field engineering.
 1. Nomenclature and construction of trenches.
 2. Trench equipment and expedients.
 3. Obstacles.
 4. Observation posts.
 5. Camouflage.
 6. Bridges.
 7. Explosives and demolitions.
 8. Cordage.
4. Company administration.
5. Military policy. History. Economics.
6. Military law. Court martial. Rules of land warfare.
7. Hoppology.
8. General.

INFANTRY SPECIAL.

This in addition to the basic course.

SOPHOMORE YEAR.

One (1) hour per week.

- 14. Drill.
 - Close and extended order.
 - School of soldier.
 - School of squad.
 - School of platoon.
 - School of company.
 - Bayonet.
 - Hand grenades.

- 15. Field engineering.
- 16. Orders and messages.
- 17. General.

JUNIOR YEAR.

Three (3) hours per week.

- 9. Infantry.
 - Close and extended order drill.
 - Automatic rifles.
 - Rifle grenades.
 - 37 mm. guns.
 - Light mortars.
 - Machine guns.
 - Ceremonies.
 - Marching.
- 10. Care and handling of arms and equipment.
- 11. Small arms firing.
 - 1. Preliminary instruction.
 - 2. Pointing and aiming drills.
 - 3. Sighting drills.
 - 4. Gallery practice.
 - 5. Coaching.
 - 6. Automatic rifles.
 - 7. Rifle grenades.
- 12. Personal hygiene, first aid, and sanitation.
- 13. Interior guard duty.
- 14. Topography.
- 15. Field engineering.
- 16. Orders and messages.
- 17. Military courtesy and discipline.
 - Musketry.
 - Ceremonies.
 - Marching.
- 10. Care and handling of arms and equipment.
- 11. Small arms firing.
 - 1. Preliminary instruction.
 - 2. Pointing and aiming drills.
 - 3. Sighting drills.
 - 4. Gallery practice.
 - 5. Coaching.
 - 6. Automatic rifles.
 - 7. Rifle grenades.
 - 8. Pistol practice.
- 12. Personal hygiene, first aid, and sanitation.
- 13. Interior guard duty.
- 14. Topography and map reading.
- 15. Orders and messages.

16. Tactical walks.
17. Military history.
18. Minor tactics.
 - Advance, flank and rear guards.
 - Outposts.
 - Patrols.
 - Approach marches and deployments.
 - Combat.

SENIOR YEAR.

Three (3) hours per week.

9. Infantry.
 - Close and extended order drill.
 - Tactical exercises.

COAST ARTILLERY SPECIAL.

SOPHOMORE YEAR

One (1) hour per week.

14. Material.

JUNIOR YEAR.

Three (3) hours per week.

9. Gunnery.
10. Orientation.
11. Coast artillery drill regulations.

SENIOR YEAR.

Three (3) hours per week.

9. Ballistics, exterior.
10. Ordnance.
11. Organization of the artillery.
12. Tactical problems.

ENGINEER SPECIAL.

SOPHOMORE YEAR.

One (1) hour per week.

14. Military map making and map reading.
15. Organization.
16. Military bridges and river crossings.
17. Fortification.

Camouflage, trenches, fire and communication. Accessories, re-
vetment, observation posts, etc. Machine-gun emplacements.
Obstacles. Shelter. Organization of the ground.

18. Roads and communications opening up new communications. Repair
of worn and shell torn roads.

JUNIOR YEAR.

Three (3) hours per week.

9. Military map making and map reading.
10. Light railways. Location, construction, maintenance and operation.
11. Explosives, demolitions, and mine warfare.
12. Fortifications.
13. Academic engineering courses of military value.

SENIOR YEAR.

Three (3) hours per week.

9. Military map making and map reading.
10. Functions and staff relations of engineers, with particular relation to special engineer services.
11. Map problems involving engineer problems encountered during war.
12. Terrain exercises involving engineer problems encountered during war.
13. Organization and administration of engineering projects (lecture).
14. Thesis on military engineering subjects.
15. Academic engineering courses of military value.

SIGNAL CORPS SPECIAL.

SOPHOMORE YEAR

One (1) hour per week.

14. Field radio sets.

JUNIOR YEAR.

Three (3) hours per week.

9. Elementary telephone, telegraph and radio engineering.

SENIOR YEAR.

Three (3) hours per week.

9. Advanced telephone, telegraph and radio engineering.

SECTION XIII.

**The Divisions of Athletics, Libraries, Museums,
Publications, State Service Work, Uni-
versity Surveys, Vocations.**

(409)

SPECIAL ACTIVITIES.

The Divisions of Athletics, Libraries, Museums, Publications,
State Service Work, University Surveys, Vocations.

ATHLETICS.

Director: FORREST C. ALLEN.

Athletic Board: *Ex officio* members: Chancellor STRONG, FORREST C. ALLEN, Senate representatives: H. A. RICE, A. J. BOYNTON, C. C. WILLIAMS, J. A. NAISMITH; five student representatives elected each year.

Mr. SCHLADEMANN.

Mr. McCARTY.

Mr. LINDSEY.

The Division of Athletics, including intercollegiate and intramural sports, has its headquarters on the upper floor of Robinson Gymnasium, at the west end of the building. Here are located the offices of Forrest C. Allen, his coaches, and assistants. This division affords all men students the opportunity to take part in sports and athletics. The large well-lighted game room, 70 by 127 feet, is used for intercollegiate and intramural games. It is equipped with a regulation basket-ball court, 90 by 50 feet, and two practice basket-ball courts, 60 by 45 feet; it has also a regulation tennis court. On the balcony is located the eighteen-lap running track, banked and cork covered. Special flooring is provided for use of indoor spikes for sprinting, jumping, hurdling, and pole vaulting. A hand-ball and boxing room on the east, and a padded wrestling room on the west adjoin the games room.

Outdoor facilities for carrying on the athletic work are provided at McCook Field. This field is well located with respect to both the University and the town of Lawrence, at the north edge of the campus. It provides three excellent turf-covered football fields, three baseball fields, nine tennis courts, and a one-fifth-mile cinder track. The stands will seat 15,000 and are filled to capacity at the great Kansas-Missouri and Kansas-Nebraska football games. Training quarters with lockers, hot and cold showers, massage room, etc., are maintained. No fees are charged for use of these facilities.

SENATE REGULATION. The University Senate has adopted rules governing the standing of all those who represent the University in athletic contests. Good scholarship and gentlemanly conduct are required of all such contestants.

THE ATHLETIC BOARD. All intercollegiate athletic contests are under the control of the University Athletic Board, composed of five students elected by the Athletic Association, four Faculty members appointed by the University Senate, the Chancellor of the University, and the Director of Athletics. The last two are *ex officio* members.

RULES. The athletes of the University are required to conform to a certain standard of scholarship set by the University Senate, and also to the rules of eligibility of the Missouri Valley Conference.

CONTROL. All forms of athletics are under the immediate control of the director of athletics and his assistants.

COACHES. All branches of athletics are under the direction of coaches who are also members of the faculty.

THE ATHLETIC ASSOCIATION is organized to promote the athletics of the University of Kansas. Membership in the association is open to all students. The Chancellor is *ex officio* president of the association.

INTRAMURAL ATHLETICS. The general athletics of the University include football, baseball, basket-ball, track, tennis, and soccer. Intramural contests are held in all branches.

INTERCOLLEGIATE GAMES. The University of Kansas is a member of the Missouri Valley Intercollegiate Athletic Association, and a full schedule of games in football, baseball, track, basket-ball, and tennis is arranged with members of that association and other educational institutions.

MISSOURI VALLEY CONFERENCES. The University is a member of the Missouri Valley Conferences as follows:

1. The Missouri Valley Conference of Presidents and Governing Boards of Institutions, which has general control of athletics as affecting institutions in the conference.

2. The Missouri Valley Conference of Faculty Representatives, having control under the first conference of the details of athletics as affecting the institutions in the conferences, such as eligibility of participants, and so forth.

GENERAL PROVISIONS FOR RECREATION.

Every student is required to engage in such physical exercise as may be designated by the proper medical authority of the University as suitable to his personal needs. Work is arranged on the basis of three hours per week for freshmen and sophomores and two hours per week for all other students. All claims for exemption from the above rule must be made on regular blanks furnished by the Physical Education Department to the Exemption Board at the beginning of each semester.

The hand-ball, wrestling, and boxing rooms are available at all times. Basket-ball teams are formed each year.

The swimming pool is always open. It is reserved for the use of women students Mondays and Tuesdays throughout the year, and all are expected to learn to swim. The women's dressing rooms in the gymnasium are supplied with hair dryer, towels, and a woman attendant. In warm weather Potter lake may be used—an artificial lake about an eighth of a mile in circumference, located down the hill north of the gymnasium, within about three minutes walk from the building, and equipped with diving stand, springboard, float, a sanded wading-place, row boat, and dressing tents. Instructors for both men and women are provided.

The tennis courts on McCook Field are open to both men and women.

The girls' athletic field, south of the gymnasium, is equipped with five tennis courts, a hockey field with concrete boundary, an archery field, and space for other games.

THE LIBRARIES.*Director:* _____*Division Committee:* Chancellor STRONG, E. GALLOO, F. H. HODDER, W. L. BURDICK, C. A. BUCKNER, G. C. SHAAD, B. F. DAINS, C. G. DUNLAP, and C. M. WATSON.*Librarian and Assistants.*

CARRIE M. WATSON, A. B., Librarian.
 CLARA SCIOTO GILLHAM, A. B., Loan Desk Librarian.
 ELIZABETH O. WOODRUFF, A. B., Cataloguer.
 DORA RENN BRYANT, Reference Librarian.
 MARY MAUD SMELSER, Accession Librarian.
 MARY AGNES COLLINS, A. B., Reference Librarian.
 FAY CECELIA MOYS, A. B., Reference Librarian.
 EDNA RACHEL DART, Reference Librarian.
 SARAH EVELYN STANTON, A. B., School of Medicine Librarian.
 NELL KENT HUDSON, A. B., School of Law Librarian.
 ANNA DYKE LEARNARD, Ph. B., School of Engineering Librarian.
 MARCIA STANHOPE BATY, A. B., Biology Librarian.
 GENEVA S. OGDEN, A. B., Biology Librarian.
 MONTA E. WING, Geology Librarian.
 AMY SOPHRONIA WOODBURY, Librarian's Clerk.
 OLIVE IRENE BROWN, A. B., Classifier.
 HAZEL I. MARTIN, A. B., Accession Assistant.

The libraries of the University contain 132,638 bound volumes and some 45,000 pamphlets, in addition to a considerable number of unbound serials and unclassified pamphlets. A annual appropriation of \$18,000 is devoted to the purchase of books. When opportunity permits, rare and unusual books are secured, but thus far the purchase has been regularly dictated by the needs of the various departments and schools of the University. As a result the library is primarily a working library for undergraduates. However, source material in the various departments of knowledge is constantly being added, so that the investigator may have ample facilities for carrying on original work.

The main collection is shelved in the stacks of Spooner Library, but to facilitate use by departments and schools, working collections have been placed in departmental reading rooms, of which seven are in the main library and nine are attached to their respective departments or schools.

A rough estimate of the number of special volumes at the command of these departments and schools follows:

Education (Spooner Library)	3,500
English (Spooner Library)	13,573
German (Spooner Library)	5,155
Latin (Spooner Library)	2,115
Greek (Spooner Library)	2,751
Romance Languages (Spooner Library)	5,304
History (Spooner Library, second floor)	7,854
Economics (Spooner Library, second floor)	3,858
Sociology (Spooner Library, second floor)	2,800
Biology (Snow Hall)	4,401
Chemistry (Chemistry Building)	3,101
Engineering (Marvin Hall)	6,088
Geology (Haworth Hall)	2,851
Law (Green Hall)	9,740
Mathematics (Administration Building)	2,380
Philosophy (Administration Building)	3,000
Physics (Blake Hall)	1,360
Medicine (Bell Memorial Hospital, Rosedale)	5,406

Information in regard to the character of these collections will be found in the statements of their respective departments or schools. Each is in charge of an assistant librarian. The special periodicals pertaining to each are distributed among these libraries.

BOOKSTACKS. There are five stories in the stack room of the library, each eight feet high, so that all the books are within easy reach. The stacks and the flooring of these rooms are of steel. Books are classified and arranged on the shelves by the Dewey system.

CATALOG The catalog of the library contains about 200,000 cards. The author and subject cards are arranged in one alphabet. The cards are arranged in cases in the general reading room.

THE GENERAL READING ROOM. The general reading room is a large, comfortable and well-equipped room, on the main floor of the library. In this room about 1,000 volumes of general reference books, cyclopedias, dictionaries, Poole's Index to Periodical Literature, and other books which are of special value for reference purposes.

PERIODICAL ROOM. The University provides in this room 1,235 periodicals and publications of learned societies. The list is made as representative as possible of the important publications of America and Europe. The back numbers are kept on file for reference, and bound as rapidly as funds permit. The completion of the sets is now under way.

Through the courtesy of their editors, 318 Kansas newspapers are contributed to the periodical room.

LIBRARY REGULATIONS.

Spooner Library Building is open every day in the year, Sundays and holidays excepted. The general reading room is open from eight a. m. to ten p. m., when the University is in session, and during vacation from eight a. m. to six p. m. Hours for the department reading rooms vary with the departments, but all are open from eight a. m. to five p. m.

Liberal facilities for using the library are offered to all members of the University. All books, except reference books and books too rare to be easily replaced, may be taken from the library by the students for three weeks. However, if a book is needed for a special purpose or a class reservation, it may be recalled by the librarian, and must be returned as soon as notice is received.

The privileges of the general reading room are open to citizens of Lawrence, and, in fact, to all Kansans; but books may be taken from the building only by members of the University.

MEMORIAL GIFTS.

Interest on the Kappa Alpha Theta memorial fund, in memory of May Sexton Agnew, is used for the purchase of books in English literature.

Two memorial gifts were received during the year 1914-'15. The professional library of the late Professor Henry C. Hill was given to the Law School by his father, Edward F. Hill, of Cape Elizabeth, Maine. By the wish of the late Dean F. O. Marvin, his professional library was given to the Engineering School. It has been appropriately shelved as a background for the bust of Dean Marvin by those alumni who presented the bust.

During the year 1918-'19 the personal library of Prof. John D. Garver was given to the School of Engineering by Mrs. Garver. Professor Garver was an alumnus, class of 1910, and was Assistant Professor of Mechanical Engineering from 1913 until his death. He died at Hoboken, N. J., in February, 1919, while in the naval service of the United States.

THE LAWRENCE PUBLIC LIBRARY.

The public library of Lawrence is open to students. This library contains 16,000 volumes, mainly of general literature and fiction, and 2,250 public documents.

THE LIBRARY OF THE KANSAS ACADEMY OF SCIENCE.

The library of the Kansas Academy of Science is located in room 501, Fraser Hall. This library contains some 8,000 volumes of scientific books. It is especially rich in the publications of universities, museums, and learned societies throughout the world. The library is open for the use of the public.

THE LIBRARIES IN TOPEKA.

The state library and the state historical library, both in Topeka, are easily accessible for the investigator.

THE MUSEUMS.

Director: FRANK STRONG, Ph. D.

Division Committee: _____

Curators.

SAMUEL J. HUNTER, A. M., Curator of the Entomological Collections.
 ERASMUS HAWORTH, Ph. D., Curator of the Geological and Mineralogical Collections.
 WILLIAM C. STEVENS, M. S., Curator of the Herbarium.
 ALEXANDER M. WILCOX, Ph. D., Curator of the Classical Museum.
 BENNETT M. ALLEN, Ph. D., Curator of the Vertebrate Paleontological Collections.
 SALLIE C. THAYER, Honorary Curator of the Thayer Art Museum.
 WILLIAM A. GRIFFITH, Curator of the Fine Arts Collections.
 HANDEL T. MARTIN, Assistant Curator of the Vertebrate Paleontological and Ethnological Collections.
 CHARLES D. BUNKER, Assistant Curator of Mammals, Birds, and Fishes.
 WM. E. HOFFMANN, A. B., Assistant Curator of Entomological Collections.

The scientific collections of the University are extensive and valuable. They were begun in 1872 by the late Dr. Francis H. Snow, and have been obtained chiefly by University exploring parties in western Kansas, Colorado, Wyoming, Arizona, New Mexico, Texas, Oregon, British America, Alaska, Greenland, and South America. These expeditions have been mainly under the direction of the late Dr. Francis H. Snow, Dr. Samuel W. Williston, Dr. C. E. McClung, Prof. Lewis L. Dyche, Prof. M. A. Barber, Prof. S. J. Hunter, and Mr. Frank Agrelius. Twenty-six of these expeditions were conducted by the late Doctor Snow personally. By means of the material thus accumulated, a system of exchanges has been established with leading institutions and naturalists in all parts of the United States, so that the cabinets contain a very satisfactory representation of the fauna and flora, both recent and extinct, not only of the state of Kansas, but also of the whole of North America. The collections are nearly all housed in the Dyche Museum of Natural History.

ENTOMOLOGY.

Professor HUNTER.
 Mr. HOFFMANN.

The foundation of these extensive collections is the Francis Huntington Snow collection, the result of numerous expeditions and frequent exchanges conducted by the late Doctor Snow. In the collections there are in all about 1,000 types determined by leading specialists in the respective groups. The collections now comprise about 27,000 species and 300,000 specimens, representing all the different orders of insects.

The orders of Lepidoptera, Coleoptera, Diptera, Orthoptera and Hemiptera are especially well represented. In the Coleoptera there are over 10,000 species; the Melanopli in Orthoptera are fully represented; the collections of Coccidæ in Hemiptera afford an excellent series for study of North American forms. These collections are being augmented an-

nually through the University Biological Survey, which is an intensive and consecutive systematic survey of all forms found within the state, their distribution, and biology. The collection, as a whole, is one of the largest connected with any educational institution in the United States.

The work in connection with the museum now affords opportunity for study throughout the entire year, in the summer months on the survey, and in the winter months on a continuation of the study of the material obtained throughout the summer. A series of monographs on Kansas forms has been prepared and others are in progress. It is expected that these will be brought together in uniform size and binding.

Specialists frequently visit these collections for recourse to the large representation of types, and such visitors are always welcome. In order to insure the preservation of "types" it has been deemed advisable to adopt the policy of retaining all "types" in the museum.

These collections are of further practical value to the people of the state in the determination of the injurious and beneficial insects and answers to numerous inquiries upon this subject.

The collections occupy a part of the second and third floors in the Dyche Museum of Natural History.

CONTENTS OF MUSEUM.

North American Coleoptera	9,500	36,000
North American Lepidoptera	3,756	12,208
North American Diptera	2,300	7,000
North American Hymenoptera	1,304	3,912
North American Hemiptera	1,200	4,000
North American Orthoptera	500	1,900
North American Neuroptera	300	1,100
Exotic Coleoptera	2,600	8,450
Exotic Lepidoptera	990	2,420
Collections for studies in geographic distribution, variations and economic problems		205,000
Grand totals	22,450	281,990

SUMMARY OF TYPES IN SNOW ENTOMOLOGICAL COLLECTIONS.

Neuroptera	2
Orthoptera	15
Hemiptera	46
Coleoptera	12
Diptera	502
Lepidoptera	100
Hymenoptera	258
African Diptera	25
Total	961

THE HERBARIUM.

Assistant Professor CHARLES.

The herbarium includes about 10,000 specimens, identified and labeled, of flowering plants, besides much material partly identified. The flora of Kansas and of the Rocky Mountains is well represented. There is also a considerable amount of cryptogamic material, including sets of economic fungi of North America and of North American lichens. The herbarium is housed in Snow Hall.

THE CLASSICAL MUSEUM.

Professor WILCOX.

The classical museum contains full-sized plaster casts of the Hermes, the Satyr of Praxiteles, the Venus of Melos, the Apollo Belvedere, the Diana of Versailles, the so-called Theseus of the Parthenon, three Metopes and twelve slabs of the north frieze and twenty of the east frieze of the Parthenon, the Varvakeion and Lenormant statuettes and the

Strangford shield of the Athena Parthenos of Phidias, the Hegeso tombstone, the Orpheus relief, the Discobolos of Myron as restored by Furtwängler, the Laocoön, the Dying Gaul, the Borghese warrior, Demosthenes, Sophocles, Augustus in military dress, the so-called Germanicus, the Satyr and Mænad relief, twenty-one busts of Greek sculpture and Greek and Roman authors and emperors, two Tanagra figurines, and the Nike of Paionios inscription; also models of the Acropolis of Athens, the east pediment of the Zeus temple at Olympia, the Victories of Paionios and Samothrace, and the columns of the temple of Castor in the Forum at Rome; and relief maps of Athens and Rome.

It has facsimile reproductions of the two Vaphio gold cups, the so-called Nestor's cup, the lion-hunt sacrificial knife, a gold mask, a diadem, and a series of smaller gold objects found in Mycenæan graves; 50 original Greek and Roman coins; a good-sized collection of specimens of building-stones used in Roman structures, inscriptions, vases, lamps, cinerary urns, locks and keys, articles of dress, and specimens of Roman glass.

The collections embrace further:

Laloux's restorations of Olympia, Defrasse's restorations of Epidaurus, Pontremoli's restoration of Pergamon, Weichardt's restorations of Pompeii, and Zeiller & Diehl's restorations of the palace of Diocletian at Spalato. Fenger's 8 colored plates of Doric Architecture; 13 Carbon photographs of Greek architecture; 9 large photographs of Roman architecture and scenes; Piranesi's large engravings of the Columns of Trajan and Marcus Aurelius; a complete set (665 so far) of Brunn's plates of Greek and Roman sculpture; 55 Braum's carbon photographs of the Parthenon sculptures; a complete set (149) of the Furtwängler-Reichhold plates of Greek vases; 80 colored plates (Lau, Genick, and Furtwängler's) of Greek vases; a complete set (137) of the Hermann-Bruckmann plates of ancient paintings; 48 colored plates of Pompeiian walls; 6 colored plates of the Odyssey paintings found in Rome; a complete set (148 plates) of Antike Denkmæler of the German Archæological Institute; illustrations of ancient architecture, sculpture, and paintings. 750 photographs illustrating Roman topography and life; 254 Underwood stereoscope views of Greece, Italy, and Sicily.

The classical museum is located in Fraser Hall, south wing, second floor.

The collections are constantly being enlarged, and are always open to students and visitors for inspection and study.

VERTEBRATE PALEONTOLOGY.

Professor ALLEN.
Mr. MARTIN.

The museum of vertebrate paleontology furnishes not only materials ordinarily lacking for the rounding out of the education of the general student, but offers excellent facilities for research work in the anatomy and phylogeny of extinct vertebrate life. The collections from the rich Kansas fields are especially complete, and the museum includes also representatives from all of the principal geological formations. The collections are distributed about as follows:

Tertiary, 200 genera, 700 species.

Cretaceous, 60 genera, 200 species.

Jurassic, 10 genera, 30 species.

Triassic, 25 genera, 75 species.

Permocarboniferous, 20 genera, 100 species.

From the Tertiary of Kansas, Wyoming, South Dakota, Oregon, and Colorado nearly all of the known genera are represented. Of the Cretaceous animals there are hundreds of specimens, including not a few of exceptional perfection and completeness. There is a very good col-

lection from the John Day region, Oregon, and one of the three collections of Patagonian specimens in the country. The collection of reptiles and birds is particularly valuable.

PALEOBOTANY.

Mr. MARTIN.

The collection in paleobotany is especially rich and valuable, representing thousands of specimens. The Dakota and Comanche Cretaceous series are the most extensive, and include many types of species and undescribed forms. In addition to the collection of Tertiary plants, there is a very large and valuable series of Carboniferous plants from Kansas, including many new forms. The collection is placed with that of paleontology. The purchase of a number of cases has made it possible to put on exhibition many more specimens than have been before open for public inspection. Collection of fossil leaves from the Bridge Creek locality, Oregon, are also on exhibition.

ETHNOLOGICAL COLLECTION.

Mr. MARTIN.

Within the past few years the museum has been enriched with the addition of a fine collection of between eight and ten thousand specimens of purely Kansas Indian material from one village, making a fine study collection. Also a very valuable collection of South Africa from the Belgian Congo region has been secured showing practically all of the utensils used in the daily life of the natives of that country.

A fine series of war material is being gradually added to the museum. Already several hundred weapons, grenades, helmets and other classes of war material is on exhibition.

COLLECTION OF MAMMALS, BIRDS, FISHES, AND REPTILES.

Mr. BUNKER.

A practically complete exhibit of the larger mammals indigenous to the North American continent, explained with accompanying photographs and labels, is to be seen in panorama on the first floor of the museum of natural history. The collection contains specimens from the whole of the North American continent, including Alaska and its surrounding islands, and Greenland as well.

The greater part of the mammal collection is preserved in the form of scientific or study skins. It comprises several thousand specimens, including skeletons and skulls, which are catalogued and so arranged that easy access may be had by those especially interested in this work.

The ornithological collection, occupying the whole of the second floor, contains 10,000 specimens, of which number 2,300 are mounted and on exhibition. The remainder, as in the case of the mammal collection, constitutes the study collection. This museum also contains the Wetmore collection comprising about 5,000 bird skins.

A series of bird groups, arranged in their natural habitat, and according to their respective life zones, is in the course of construction. This work, when completed, is intended to instruct fully in the breeding, nesting and life habits of the birds from the tropics to the arctics.

The collection of fishes and reptiles, to be found on the basement floor, while incomplete for the fauna of North America, is very complete for the state of Kansas. Both collections are preserved in liquid, and have been classified and catalogued for the ready use of the students.

FINE ARTS COLLECTIONS.

Professor GRIFFITH
Mrs. THAYER.

The Thayer Art Museum.

Through the generosity of Mrs. William B. Thayer, of Kansas City, Mo., the University has an art collection that is of unusual value to art students. It was made with this end in view and illustrates the development of design in textiles, ceramics, glassware, and costumes. There are a number of important paintings of the American school, Chinese and Japanese paintings, and 1,200 Japanese prints of exceptional merit. There are about 9,000 items in the collection, the most important being textiles, of which there are examples of Coptic and Byzantine textiles, Venetian embroidery of the fifteenth and sixteenth centuries, Chinese tapestries of the Ming period, Chinese embroideries, Indian and Persian shawls and rugs, a large collection of Paisley shawls and American counterpanes. In Chinese art, the collection is rich in cameo glass, ceramics, and jade articles, over 100 being snuff bottles. In Japanese art objects are many inro, netsukis, and combs done in carved ivory and lacquer; bronze castings; swords and sword guards; cloisonné, and ceramics.

The following well-known American painters are represented by important examples of their work: George Inness, J. S. Murphy, Winslow Homer, Homer Martin, Paul Dougherty, Emil Carlsen, Richard Miller, Jonas Lie and Robert Henri.

The following European painters are represented: Joseph Israels, Mesdag and Sarolla Bastida.

There came with the Thayer collection about a thousand books upon art topics. The University has recently purchased the F. O. Marvin art library. These collections, added to the 3,500 books on art already in the University library, make it one of the largest and most valuable art libraries in the West. All are available to the student of art.

The Brynwood Collection of Paintings.

The Brynwood Collection of Paintings, belonging to the late B. M. Woodward of Lawrence, has been loaned, for an indefinite period, to the School of Fine Arts. The collection consists of about fifty oil paintings and a few water colors and pastels. There are paintings by Inness, Murphy, Charles Partridge Adams, Mesdag, Ciardi, Thaulow, Leemputten, W. T. Richards, Charles Davis, Edward Gay, Frank R. Green, Lambert, Vrolyk and others. These paintings are on view on the top floor of the East Wing.

Art Exhibitions.

Frequent exhibitions of works of art are held at the University, together with a course of lectures upon subjects related to the fine arts. At the close of the year there is held an exhibition of work done by pupils of the department of drawing and painting.

PUBLICATIONS.

Director: A. S. OLIN.

Division Committee: STRONG, HODDER, FOSTER, FLINT, DAINS, S. J. HUNTER,
P. F. WALKER, INGHAM.

The Division of Publications has general supervision of all publications issued by the University. These publications consist of the following series, each in charge of a special committee:

Biological Series: Chairman, S. J. Hunter.
Catalog: Chairman, A. S. Olin.
Engineering Bulletins: Chairman, G. C. Shaad.
Humanistic Studies: Chairman, F. H. Hodder.
Science Bulletin: Chairman, S. J. Hunter.
University Extension Bulletins: Chairman, H. G. Ingham.
University News-Bulletin: Chairman, L. N. Flint.

All communications, including requests for exchanges, may be addressed to the director of the division.

The reports of the Geological Survey, although prepared by members of the University faculty, are published under a special statute; therefore they are not University publications. The list of these reports is given under Geological Survey.

THE BIOLOGICAL SERIES contains reports of the Biological Survey (see p. 425), and biological studies of economic value, such as have appeared in the Entomological Studies. The following, which have appeared as bulletins of the department of entomology, are sent free to any citizen of Kansas upon application:

Two Grain Insects. V. L. Kellogg and F. H. Snow. 1885.
The Horn Fly of Cattle. V. L. Kellogg and F. H. Snow. 1889.
The More Destructive Grasshoppers of Kansas. S. J. Hunter and F. H. Snow. 1897.
Scale Insects Injurious to Orchards. S. J. Hunter. 1898.
Alfalfa, Grasshoppers, Bees; Their Relationships. S. J. Hunter. 1899.
The Honey Bee and its Food Plants in Kansas. S. J. Hunter. 1899.
The Green Bug and its Natural Enemies. S. J. Hunter. 1909.
Orchard Problems and How to Solve Them. H. B. Hungerford. 1912.
Report of Results of University Research Commission on "Horse Plague." S. J. Hunter; A. L. Skoog, M. D.; Wm. K. Trimble, M. D.; N. P. Sherwood. 1913.
Formulas for Destroying Injurious Insects and Plant Diseases. Walter H. Wellhouse. 1916.
Studies in Kansas Insects. P. W. Classen, R. H. Beamer, C. H. Kennedy, P. B. Lawson, W. H. Wellhouse. 1917.

THE ENGINEERING BULLETINS present the results of investigations by the Engineering Experiment Station (see p. 423).

The following bulletins have been published in this series, but the first three are out of print.

BULLETIN No. 1. NOVEMBER, 1909.
A Ballistic Electrodynamometer Method of Measuring Hysteresis Loss in Iron. Martin E. Rice and Burton McCollum.
Voltage Regulation of Alternators. Burton McCollum.
BULLETIN No. 2. JULY, 1912.
Natural Gas: Its Properties, Its Domestic Use, and Its Measurement by Meters. P. F. Walker.
BULLETIN No. 3. JANUARY, 1913.
Kansas Fuels: Coal, Oil, and Gas. Heating Values and Proximate Analysis of Coal. P. F. Walker and Walter Bohnstengel.
Discussion of Sulphur Content of Bituminous Coal. Walter Bohnstengel.
BULLETIN No. 4. OCTOBER, 1913.
The Organization and Work of the Engineering Experiment Station. G. C. Shaad.
Vocational Education in Kansas. P. F. Walker.
BULLETIN No. 5.
The Ground Water Supplies of Kansas. C. A. Haskins and C. C. Young.
BULLETIN No. 6. (Partial reprint of No. 3.)
Kansas Fuels: Coal, Oil, and Gas. P. F. Walker and Walter Bohnstengel.
Economic Effects of Washing Coal from the Kansas State Mine. C. M. Young.
BULLETIN No. 7.
The Removal of Iron from Municipal Water Supplies. J. W. Schwab.
The Measurement of Electrical Energy, Electricity Meters, Rates for Electrical Energy. Geo. C. Shaad and C. A. Johnson.

BULLETIN No. 8.

The Measurement of Electrical Energy, Electricity Meters, Rates for Electrical Energy. *Geo. C. Shaud and C. A. Johnson.* (This is now listed under Bulletin No. 7, which is incorrect.)

BULLETIN No. 9.

Sewage Disposal in Kansas. *F. M. Veatch, H. P. Evans, S. E. Jackson.*

BULLETIN No. 10.

The Present Development of Transmission Lines in Kansas, with Appendix on the Calculation of Iron Wire Lines. *J. E. Johnson.*

BULLETIN No. 11. (In press.)

Natural Gas of the Mid-continental Field. *H. C. Allen and E. E. Syder.*

HUMANISTIC STUDIES is a series devoted to the presentation of the results of research along humanistic lines. The numbers are issued at irregular intervals. Each number is a complete monograph, and its price is determined by its size and the cost of publication.

VOLUME I.

No. 1. Studies in the Work of Colley Cibber. *DeWitt C. Croissant.* October, 1912.

70 pages. 50 cents.

No. 2. Studies in Bergson's Philosophy. *Arthur Mitchell.* January, 1914. 115

pages. 75 cents.

No. 3. Browning and Italian Art and Artists. *Pearl Hogrefe.* May, 1914. 77

pages. 50 cents.

No. 4. The Semantics of mentum, bulum, and culum. *Edmund D. Cressman.*

January, 1915. 56 pages. 50 cents.

VOLUME II.

No. 1. Oriental Diction and Theme in English Verse, 1740-1840. *Edna Osborne.*

May, 1916. 141 pages. 75 cents.

No. 2. The Land Credit Problem. *George E. Putnam.* December, 1916. 107 pages.

75 cents.

THE SCIENCE BULLETIN (continuation of the *Kansas University Quarterly*) is maintained by the University as a medium for the publication of the results of original research by members of the University. Individual papers are printed and issued as separates. When a sufficient number of papers has been published they are bound together in volumes for the purpose of exchange with other journals. The price of subscription is three dollars a volume. The price of separates varies with the number of pages. Some parts of the *Quarterly*, and separates of all articles in the *Science Bulletin*, beginning with volume V, No. 20, except volume VII, Nos. 1, 2 and 16, may be obtained by exchange or purchase. Information may be obtained by addressing *Science Bulletin*. Ten volumes of the *Quarterly* and ten of the *Bulletin* have been published.

UNIVERSITY EXTENSION BULLETINS in part make announcements of the work of the Extension Division, in part give information on public questions. Among others the following have appeared:

Playgrounds and Parks.

Commission Plan of City Government.

Training for Debating.

Announcement of Extension Lecture Courses.

Recall of Judges.

Constructive Juvenile Effort in Kansas.

Lectures Delivered at the Merchants' Week (1914).

Lectures Delivered at the Merchants' Week (1915).

Announcement Kansas High-school Debating League (annual).

Correspondence-study Courses (annual).

THE UNIVERSITY NEWS-BULLETIN is issued monthly. It is primarily a medium for carrying to the newspapers of the state information about the instructional and state service work of the University. In this series have been included:

Four numbers devoted to the Hattie E. Lewis Memorial Essays in Applied Christianity.

Two annual and two biennial reports of the Board of Administration.

Ten bulletins covering special "weeks" at the University.

STATE SERVICE WORK.*Director: _____.**Division Committee: _____.***ENTOMOLOGICAL FIELD WORK.**

Professor HUNTER, State Entomologist.

From 1872 to 1907 the University conducted entomological investigations throughout the state. These investigations were directed, in part, to problems referred to the University for solution by various interests of the state, and, in part, to fundamental research problems presented by such investigations.

In 1907 the legislature created the State Entomological Commission. The character and scope of the work of this Commission is defined in the following section of the law:

"Sec. 2. That this State Entomological Commission shall consist of the secretary of the State Board of Agriculture, secretary of the Kansas State Horticultural Society, and the professor of entomology of the University of Kansas, and the professor of entomology at the State Agricultural College, and the fifth member to be a nurseryman actively engaged in the nursery business within the state of Kansas, to be appointed by the governor, whose term of office shall be two years. The secretary of the State Board of Agriculture shall be chairman of this Commission and the commissioners' secretary shall be the secretary of the State Horticultural Society.

"Sec. 4. That it shall be the duty of said state entomologists, under the control of the State Entomological Commission, to seek out and suppress pernicious insect pests and injurious and contagious plant diseases hereinbefore mentioned as destructive to the horticultural and agricultural interests of this state, and conduct experiments when necessary to accomplish that end."

Accordingly, for expediency in the conduct of its field work, the Entomological Commission has assigned the southern half of the state to the state entomologist at the University of Kansas; Lawrence, and the northern half to the state entomologist at the Agricultural College, Manhattan. Inquiries from the southern half of the state should, therefore, be directed to the University of Kansas; inquiries from the northern half to the Kansas Agricultural College.

Publications from Office of the State Entomologist.

Biennial Reports. 1907-1908; 1909-1910; 1911-1912; 1913-1914; 1915-1916; 1917-1918.
Circular No. 1. Law Creating the Commission.
Circular No. 2. Information in Regard to Remedial Measures against Scale Insects.
Circular No. 3. The San José Scale.
Circular No. 4. Formulas for Destroying Injurious Insects and Plant Diseases.
Circular No. 5. White Pine Blister Rust. Quarantine.

WATER ANALYSIS.

Professor CHARLES A. HASKINS.

The legislature of 1907 and 1909 passed laws giving to the State Board of Health a large degree of control over all public water supplies and sewerage systems of the state and charging this board with the preservation of the purity of the waters of the state, for the protection of the public health. The legislature of 1915 passed a law giving the State Board of Health power to make rules and regulations for the collection of samples and analysis of water furnished to the public for domestic consumption by municipalities, corporations, common carriers, or individuals, and located the water laboratory at the University. The secretary of the State Board of Health, the state sanitary engineer and his assistants, the director of the water laboratory and his assistants, constitute the division of water and sewage of the State Board of Health.

STATE CHEMICAL RESEARCH.

Professor DAINS.

Included in the department of chemistry is the Division of State Chemical Research, which has for its object the study of those problems of Kansas, municipal or industrial, which may lend themselves to chemical investigation. In addition to its own problems, this division coöperates with other University activities which are engaged in state service work.

ANALYSIS OF FOOD AND DRUGS.

Professor BAILEY, Chemist.
Professor SAYRE, Pharmacist.

The Kansas food and drugs act of February 14, 1907, requires analysis of food products to be made by the chemistry departments of the University and the Agricultural College; analyses of drugs to be made by the School of Pharmacy of the University. These analyses are made upon samples of foods and drugs collected by the special food and drug inspectors appointed by the State Board of Health. A special laboratory has been fitted up for the analysis of food and another for the analysis of drugs.

The chemists in these laboratories not only make examinations of the samples that are sent in by the official inspectors, but they devote considerable time to a study of the condition of the market, to see if adulteration exists.

The department of bacteriology and entomology collaborate with the department of chemistry and the School of Pharmacy in making reports on food and drugs.

WEIGHTS AND MEASURES.

Assistant Professor STIMPSON.

In 1868 the state law designated the Chancellor *ex officio* state sealer of weights and measures. The University has in its custody complete sets of the different standards of weights and measures, together with the necessary equipment of balances and other apparatus to make them available for use. These standards are of high accuracy and are certified by the United States government through the National Bureau of Standards, and are by law the authorized public standards of the state. A deputy state sealer, who is a member of the Faculty, gives a large part of his time to this work. He compares and adjusts, free of charge, all county, municipal, and other official standard weights and measures. He will also compare and adjust weights and measures for business houses, institutions, and others who may desire such comparisons made. For this work a small fee, which is set by law, is charged.

ENGINEERING EXPERIMENT STATION.

FRANK STRONG, Ph. D., Chancellor of the University.
P. F. WALKER, M. M. E., Director Industrial Engineering.
GEO. C. SHAAD, E. E., Electrical Engineering.
H. A. RICE, C. E., Mechanics.
GOLDWYN GOLDSMITH, Ph. B., Architectural Engineering.
F. B. DAINS, Ph. D., Chemical Engineering.
C. C. WILLIAMS, C. E., Civil Engineering.
F. H. SIBLEY, M. E., Mechanical Engineering.
C. M. YOUNG, E. M., Mining Engineering.

ORGANIZATION AND PURPOSE.

Engineering experiment stations have been organized in several of the technical schools in the United States, their purposes, in the main, being as follows: to correlate and systematically group together the results of scientific investigations as they are conducted under the various depart-

ments of the schools; to plan, organize, and direct additional work to be carried out by the departments of the school along lines which will be of practical benefit to engineers in general and to the state or the locality in which the school is situated in particular; to act in stimulating and elevating the engineering education given by the school; and to arrange for the publication and distribution of the results of engineering and industrial research work.

The University of Kansas organized such a station in 1908, with the Dean of the School of Engineering as Director and the balance of the staff made up of the Chancellor of the University and the heads of the various engineering departments. The personnel of the present staff is given above. Up to the present time the financial support of the University of Kansas Engineering Experiment Station has been mainly through the appropriations granted to the various departments of the Engineering School. The work of investigation has been carried on by men regularly appointed to the instructional staff, but relieved of teaching duties to some extent in order to give time for special investigations.

Subjects on which investigations are in progress are as follows:

The adaptability of Kansas rock to road building.
 A study and classification of the different commercial bituminous paving materials.
 Methods of waterproofing cement mortars and concrete.
 General survey of concrete aggregate, sand and stone, of the state.
 An investigation of the highway bridges of the state, and improvements in design.
 Investigation of stresses in railroad track.
 Study of railroad track drainage.
 Investigation of paving brick of Kansas.
 Investigation of methods of sewage disposal suited to conditions in Kansas.
 The relation of water supplies, water purification, sewerage, and sewage disposal to the public health of Kansas cities.
 The relation of air supplies to public health problems.
 The purification of water used in swimming pools.
 An investigation of the suitability of the sands of Kansas as filter media in water purification.
 The supply of electricity for lighting and power in small cities.
 The fixing of fair rates for electricity when furnished by small plants.
 An investigation of the starting of synchronous motors and the operating characteristics of such motors.
 The burning of low-grade fuel in boiler furnaces.
 The properties of lubricating oils.
 Survey of Kansas coals with regard to improvement by washing.
 Efficient concentration of lead-zinc ores.
 Investigation of economics of production of Kansas coal mines.
 School buildings, grade and high schools, with particular reference to fireproofing, lighting, ventilation, and sanitation.
 The preparation of standard building laws suitable for communities of different sizes.
 Survey of industries of the state and of industrial resources.
 Investigation of power and heat distribution in manufacturing plants.

The following bulletins have been published:

- No. 1. Part 1.—A ballistic electro-dynamometer method of measuring hysteresis loss in iron. Part 2.—Voltage regulations of alternators.
- No. 2.* Natural gas: its properties, its domestic use, and its measurement by meters.
- No. 3.* Kansas fuels: coal, oil, gas. Part 1.—Heating values and proximate analysis of coal. Part 2.—Discussion of sulphur content of bituminous coal.
- No. 4. Part 1.—The organization and work of the engineering experiment station of the University of Kansas. Part 2.—Vocational education in Kansas, with courses of study now offered by the University School of Engineering.
- No. 5.* Water supplies of Kansas. Part 1.—Ground water supplies.
- No. 6.* Kansas fuels: coal, oil, gas. Part 1.—Heating values and proximate analysis of coal (reprint of No. 3). Part 2.—Discussion of sulphur content of bituminous coal (reprint of No. 3). Part 3.—Economic effects of washing coal from the state mine.
- No. 7.* (In collaboration with the Division of State Chemical Research.) The removal of iron from municipal water supplies.
- No. 8. The measurement of electrical energy, electricity meters, rates for electrical energy.
- No. 9. (In collaboration with the Division of State Chemical Research.) Sewage disposal in Kansas. A discussion of practice in certain municipalities, together with instructions to plant operators.
- No. 10. The present development of transmission lines.
- No. 11. (In collaboration with the Division of State Chemical Research.) A chemical survey of the natural gases of Kansas and Oklahoma.

* Out of print.

STATE SURVEYS.

Director: FRANK STRONG, Ph. D.

Division Committee: ———.

BIOLOGICAL SURVEY.

Professor HUNTER, Entomologist.

Professor ALLEN, Zoölogist.

Assistant Professor STERLING, Botanist.

Each summer the departments of botany, zoölogy, and entomology send out observation parties to study the forms of life constituting their respective fields. These parties are composed of biologists and advanced students of biology, mainly from the University of Kansas. The records of their observations are issued in separate reports and in the science bulletins of the University. By means of the collections made it is hoped to secure for the museums a complete representation of the animal and plant life of the state.

GEOLOGICAL SURVEY.

RAYMOND C. MOORE, State Geologist.

The University Geological Survey of Kansas was organized by the Board of Regents of the University in 1894, under the general authority given them by the law, and was given especial sanction and authority by legislative enactment from 1897 to 1907, when the present law was passed. The object is to accomplish a geological survey of the state as rapidly as possible, giving a complete exposition of its geological and mineralogical resources, including all subjects of economic and scientific importance.

By provision of law the Chancellor of the University is *ex officio* director of the Survey, and a member of the Department of Geology is state geologist. It is contemplated that the work will be done principally by members of the University Faculty and advanced students, so that the cost to the state will be a minimum. The results already obtained have been of great value to the state, especially in the development of coal, oil, gas, Portland cement, gypsum and its products, and clay manufactories.

The stratigraphy of the east third of the state has been worked out in great detail, and also the fauna and flora of the area have been studied—to such an extent, indeed, that geologists of adjoining states now recognize our stratigraphic and paleontologic studies as being the most nearly complete of any within the great Mississippi valley area.

Recently the Survey has entered upon the investigation of Kansas clays as a special undertaking. A laboratory was built and equipped for this purpose by direct legislative appropriations. While other features of geological work are continued, it has seemed desirable for the past few years that the Survey should especially emphasize investigations.

Work was begun on the Survey in 1893 and has been carried forward steadily ever since. Throughout this time from five to twelve assistants have been doing field work during summer vacations. The laboratory work and the writing of reports have been done principally during the remaining nine months of the year. The subjects thus far studied and reported upon are given in the following list of publications. Other subjects have been studied, but not yet sufficiently for the completion of reports.

Publications of the State Geological Survey.

The Survey has already published the following reports, all of which are for free distribution, the recipient paying transportation charges. (Those marked with a star are out of print.)

- Volume I, 1896.—Reconnaissance Report on General Stratigraphy of Eastern Kansas.*
- Volume II, 1897.—General Geology of Western Kansas.*
- Volume III, 1898.—Special Report on Coal. 28 cents.
- Volume IV, 1898.—On Upper Cretaceous Paleontology.*
- Volume V, 1899.—Special Report on Gypsum and Gypsum Cement Plasters. 16 cents.
- Volume VI, 1900.—Carboniferous Invertebrates and Cretaceous Fishes. 28 cents.
- Volume VII, 1902.—Mineral Waters. 20 cents.
- Volume VIII, 1906.—Special Report on Lead and Zinc. 28 cents.
- Volume IX, 1909.—Special Report on Oil and Gas. 32 cents.
- Volume X, 1910.—A Special Report on Mine Explosions, in preparation.
- Report on Mineral Resources of Kansas for 1907. 4 cents.
- Report on Mineral Resources of Kansas for 1898.*
- Report on Mineral Resources of Kansas for 1899. 4 cents.
- Report on Mineral Resources of Kansas for 1900, 1901. 5 cents.
- Report on Mineral Resources of Kansas for 1902.*
- Report on Mineral Resources of Kansas for 1903. 3 cents.
- Bulletin I.—Well Waters of Kansas for 1913. 6 cents.
- Bulletin II.—Crystalline Rocks in Kansas. 2 cents.

Since the parcel-post law became effective the postal rates for near-by destinations are materially reduced from the above figures, but no definite figures can be quoted, as the rates vary with distances.

Volume I is devoted entirely to reconnaissance work in stratigraphy and a preliminary description of the general geology of eastern Kansas, with a short description of the oil and gas fields of the state and a preliminary catalog of invertebrate fossils found in the Carboniferous age.

Volume II is a similar description of the stratigraphy and other features of general geology of western Kansas, being a companion to volume I. It is a short chapter on some phases of vertebrate paleontology.

Volume III is a special report on coal, giving a general account of the stratigraphy of eastern Kansas, the most extensive yet published, and a detailed account of the coal-bearing strata of the state, methods of mining, the chemical and physical properties of Kansas coal, and other subjects of a like nature.

Volume IV is devoted entirely to the paleontology of the Upper Cretaceous. It is profusely illustrated with plates and cuts of vertebrate fossils from western Kansas.

Volume V is a special report on gypsum and gypsum cement plasters, giving the results of about three years' investigation. This is probably the best account yet published on this interesting product.

Volume VI is the second volume on paleontology. It deals with Carboniferous invertebrates and Cretaceous fishes.

Volume VII is devoted to the mineral waters of the state, and gives a description not only of the mineral waters of Kansas, but of mineral waters in general.

Volume VIII is a special report on lead and zinc.

Volume IX is a special report on oil and gas, with many maps and geological sections and a lithographed geologic map of the state.

Volume X is a special report on coal-mine explosions, giving a history and tabulation of all recorded mine explosions of the world, and their causes, when known, followed by extensive study of mine gases, coal dust, modes of ignition and other causes leading to mine explosions and mine fires, with suggestions and recommendations for prevention of the same. Ready soon.

Bulletin I is devoted to a discussion of well waters of the state. It is written in a plain, every-day style, for the layman rather than for the scientist. It describes briefly where water may be had by digging, and where it is useless to dig wells.

Bulletin II, Crystalline Rocks in Kansas. An investigation into the question of possible subsurface crystalline rocks in certain parts of the state.

The series of annual reports began with a report on the mineral productions of the state for 1897 and was continued to 1903. The reports for 1900 and 1901 were issued jointly. Largely they are repetitions of the same subjects, as each of them contains a complete summary of the total state production to date. They cover the subjects of gold, silver, lead and zinc, coal, oil, gas, clay products, gypsum, hydraulic and Portland cements, building stone, and salt.

The report for the year 1902 was delayed in publication and thereby admitted a short report on the extraordinary flood of the Kansas river in May and June, 1903. The report for 1898 contains an extended description of Kansas salt as a special article, and similarly the report of 1902 has a specially prepared chapter on Portland cement.

Since the year 1910 work has been confined principally to the completion of a stratigraphic and paleontologic survey of the Permian of Kansas, and to an exhaustive study of the clays of the state. Neither of these studies is yet completed. The legislature of 1911 made a special appropriation for the erection and equipment of a clay-testing laboratory. Since its completion the Survey is prepared to test all clays of the state by all methods known to science and the arts. It is proposed to prosecute the work of testing Kansas clays as rapidly as possible, and to issue reports on results obtained from time to time as the work progresses. The first clay bulletin was on the Dakota Clays of Kansas.

VOCATIONS.

Director: A. T. WALKER.

Division Committee: CHANCELLOR STRONG, W. M. DUFFUS, L. N. FLINT, W. S. HUNTER, F. J. KELLY, OLIN TEMPLIN, C. C. WILLIAMS, A. WINSTON, E. SPRAGUE.

The division was organized during the last year. It gathers information about professions, business, and other vocations suitable for university-trained men and women, and makes this information available for students. It expects to encourage research into the possibilities of ascertaining special abilities by psychological tests. It hopes by these means to aid in making the students' selection of courses more purposeful, and to assist students in choosing the occupations in which they can work most effectively.

SECTION XIV.

Roll of Students, etc.

(427)

ROLL OF STUDENTS.

GRADUATE SCHOOL.

- Alsop, Edith Louise, B. S. '16, State Agricultural College; Psychology; Wakefield.
 Alsop, Inez, B. S. '16, Kansas State Normal; Education; *Tipton, Iowa.*
 Asendorf, William Fred, B. S. '19, University of Kansas; Chemistry; Garden Plain.
 Auchard, Ralph Emerson, A. B. '19, University of Kansas; Education and Economics; Clay Center.
 *Bailey, George S., A. B. '20, University of Kansas; Economics; Salina.
 Bays, Martha Elizabeth, A. B. '19, Fairmount College; Bacteriology; Eureka.
 Berger, Emily V., A. B. '14, University of Kansas; Chemistry; Halstead.
 Bicknell, Mary Lenore, A. B. '19, DePauw University; Zoölogy; *Greencastle, Ind.*
 Black, Florence Lucile, A. B. '13, University of Kansas; Mathematics; Meade.
 Blair, James Stuart, A. B. '19, University of Kansas; Chemistry; Lawrence.
 Blim, Miles, A. B. '19, College of Emporia; Fine Arts and History; Council Grove.
 Bower, Burnett O., B. S. '17, University of Kansas; Mechanical Engineering; Mound City.
 Brady, Agnes Marie, A. B. '18, University of Kansas; Spanish; Lawrence.
 *Broeker, Louise Marie, A. B. '20, University of Kansas; Home Economics; Lawrence.
 Bromell, George Daniel, A. B. '19, Kansas City University; Sociology; Kansas City.
 Brown, Alice Lenore, A. B. '16, University of Kansas; Zoölogy; *Conneaut, Ohio.*
 Brown, Ben E., A. B. '17, University of Kansas; Physics; Lawrence.
 Brown, Howard D. H., A. B. '19, University of Kansas; Anatomy; Beloit.
 Brown, Ruth Endacott, A. B. '18, University of Kansas; Chemistry; Lawrence.
 Brown, William Fayette, A. B. '14, University of Kansas; Education; Lawrence.
 Buck, Helen Elizabeth, A. B. '19, Cotner College; Education; Lawrence.
 Buffington, Ralph Mulvaney, A. B. '18, University of Kansas; Chemistry; Ness City.
 Burger, Eram Omer, A. B. '18, University of Kansas; Mathematics and Physics; Lawrence.
 *Burnett, Ielah, L., A. B. '19, University of Kansas; Entomology; Linwood.
 Butler, Leota Rae, A. B. '19, Southwestern College; Chemistry; Winfield.
 Byrns, Arthur G., B. S. '98, Purdue University; Hispanic Languages; Lawrence.
 Carmen, Justice Neale, A. B. '18, University of Kansas; French; Lawrence.
 Chandler, John Roscoe, B. S. '15, State Normal School; Educational Field Work; Eskridge.
 Culter, Harold, State Normal School; Emporia.
 Deibert, Olin, A. B. '17, University of Kansas; Bacteriology; Lawrence.
 Dielmann, Reta Hazel, A. B. '17, University of Kansas; History; Winfield.
 Dolbee, Myrtle Elizabeth, A. B. '13, University of Kansas; German; Lawrence.
 Douthitt, Bessie Price, A. B. '18, University of Kansas; Zoölogy; Lawrence.
 Downs, Cornelia Mitchell, A. B. '15, University of Kansas; Bacteriology; Lawrence.
 Fletcher, Liona Blanche, A. B. '17, University of Kansas; History; *Lamar, Mo.*
 Foster, James Ralph, A. M. '16, University of Kansas; English; *Carthage, Mo.*
 Foster, Lewis Chandler, A. B. '19, University of Kansas; Anatomy; *Carthage, Mo.*
 Franzen, Henry H., A. B. '19, Pomona College; Sociology; Canton.
 Giddinghagen, Myrtle, A. B. '19, University of Kansas; Spanish; *Kansas City, Mo.*
 *Gorrill, Galen A., A. B. '20, University of Kansas; Geology; Lawrence.
 Greenwood, Ellen Grace, A. B. '19, McPherson College; Education; *Carthage, Mo.*
 Gunthorp, Horace, A. B. '09, Stanford University; Zoölogy; Lawrence.
 *Hall, Harold Read, A. B. '20, University of Kansas; Economics; Pratt.
 Hall, Royal Glenn, A. B. '12, Park College; Sociology; Lawrence.
 Harrel, Chastain G., A. B. '15, William Jewell College; Chemistry; Lawrence.
 Herron, Allen M., A. B. '16, University of Kansas; Educational Field Work; Eureka.
 Hilsman, Itasca P., A. B. '17, University of Kansas; Entomology; Lawrence.
 *Hockenhuil, Floyd Langley, A. B. '20, University of Kansas; Psychology and Journalism; Lawrence.
 Hoffman, William Edwin, A. B. '18, University of Kansas; Entomology; Lawrence.
 Holloway, Richard Black, A. B. '19, University of Kansas; Economics; Lawrence.
 Hoover, John Hevner, A. M. '18, University of Kansas; Education; Lawrence.
 Huffman, Nathan Harlan, A. B. '19, University of Kansas; Spanish; Lawrence.
 Hull, Myra Elsa, A. B. '19, University of Kansas; English; Lawrence.
 Isenberger, Robert Murray, A. B. '18, University of Kansas; Physiology; Salina.
 Jevons, Beulah Helen, B. S. '15, State Normal School; History; Wakefield.
 *Kampert, George, A. B. '20, University of Kansas; Chemistry; Seneca.
 Kinney, May, A. B. '18, University of Kansas; Biochemistry; Lawrence.
 Kirkpatrick, Ellis Lore, B. S. '14, Iowa State College; Sociology; *Colorado Springs, Colo.*
 Korb, John Herman, B. S. '20, University of Kansas; Physiology; Lawrence.
 Kraus, Harry Ellsworth, A. B., B. S. '11, University of Kansas; Education; *St. Regis, Mont.*
 *Landon, Charles E., A. B. '20, University of Kansas; Economics; Lawrence.

* Seniors who have completed within ten credit hours sufficient work for the A. B. or B. S. degree.

GRADUATE SCHOOL—concluded.

- *Landon, Ira T., A. B. '20, University of Kansas; Chemistry; Lawrence.
 Lange, William F., B. S. '14, Missouri State University; Chemistry; Lawrence.
 *Law, Marcellus S., A. B. '20, University of Kansas; Chemistry; Lawrence.
 Long, Walter Sterritt, M. S. '19, University of Kansas; Chemistry; Lawrence.
 Luby, William Arthur, A. B. '05, University of Kansas; Mathematics; *Kansas City, Mo.*
 MacGregor, Helen, A. B. '17, Yankton College; Ancient Languages; *Yankton, S. Dak.*
 Magnusson, Amanda, A. B. '17, Bethany College; Education; Lindsborg.
 Malm, Alha M., A. B. '19, Bethany College; Zoölogy; Lindsborg.
 *Mann, Delbert Martin, A. B. '20, University of Kansas; Sociology; Lawrence.
 Marm, Anna, A. B. '09, Bethany College; Mathematics; Lindsborg.
 Martin, Ethel, A. B. '17, University of Kansas; Bacteriology; Lawrence.
 Mellenbruch, Pearl Leslie, A. B. '17, Midland College; Education; Lawrence.
 Mellenbruch, Victor Ray, A. B. '17, Midland College; Mathematics; Topeka.
 Montgomery, John Alexander, A. B. '19, University of Kansas; Journalism; Lawrence.
 *Montgomery, Robert Hargrove, A. B. '20, University of Kansas; Economics;
San Marcos, Tex.
 *Mower, Ernest, A. B. '18, University of Kansas; Sociology; Loet Springs.
 McLatchey, Nina Mildred, A. B. '11, Washburn College; Mathematics; Topeka.
 McQuiston, Raymer, A. B. '16, University of Kansas; English; Independence.
 *Nettels, Charles Henry, A. B. '20, University of Kansas; Chemistry; Topeka.
 *Nixon, Mabel, B. S. '20, University of Kansas; Education; Lawrence.
 Olander, Clifford Paul, B. S. '18, Washburn College; Chemistry; Topeka.
 Pearson, Warren, A. B. '19, University of Kansas; Sociology; White City.
 Petteys, Grace Ferne, A. B. '17, Ottawa University; Education; Newton.
 Pollard, James Hybert, A. B. '15, William Jewell College; Lawrence.
 Potts, Blanche, B. S. '19, Ottawa University; Fine Arts; Ottawa.
 Preyer, Mary, B. M. '17, University of Kansas; Fine Arts; Lawrence.
 *Ramsey, Lauriston, A. B. '17, University of Missouri; Geology; *Craig, Mo.*
 Ramsey, James Blaine, A. B. '16, University of Kansas; Chemistry; Garnett.
 Ream, Virginia Brand, A. B. '17, Fairmount College; History; Wichita.
 Reding, Katherine, A. B. '18, University of Kansas; Spanish; Lawrence.
 Robertson, Minnie Moody, A. B. '18, University of Kansas; Education; Lawrence.
 Salvesson, Edyth McBratney, A. B. '19, University of Kansas; Lawrence.
 Sikes, Erie B., B. D. '10, Oberlin College; Education; Kiowa.
 *Smith, Erma Anita, A. B. '20, University of Kansas; Physiology; Sharon.
 *Smith, Esther B., B. S. '14, State Agricultural College; Chemistry; Wamego.
 Smith, Henry C., B. S. '16, Massachusetts Institute of Technology; Sociology;
 Independence.
 Snow, Florence L., A. M. '09, Baker University; Fine Arts; *Neosho Falls, Mo.*
 Sommerier, Eloise Cornelia, A. B. '19, Southwestern College; Education and Psychology;
 Winfield.
 Stark, Elizabeth K., A. M. '18, Bryn Mawr College; Psychology; *Rochester, N. Y.*
 Starrett, Ellis S., A. B. '19, University of Kansas; Sociology; Norton.
 *Stevenson, Edward, A. B. '20, University of Kansas; Bacteriology; Lawrence.
 *Stimmel, Robert M., A. B. '20, University of Kansas; Bacteriology; Mullinville.
 Story, LeRoy B., A. B. '19, Nebraska Wesleyan; Chemistry; *Bloomington, Neb.*
 Strain, Helen, A. B. '16, Cooper College; English; Clyde.
 Strem, Carl Eric, A. B. '17, Whittier College; Chemistry; Lawrence.
 Taylor, Irene, A. B. '19, Park College; Education; Lawrence.
 Templin, Marjorie Alta, A. B. '15, University of Kansas; Bacteriology; Lawrence.
 Thompson, Ruth, A. B. '18, Cooper College; Chemistry; Sterling.
 Thompson, William R., B. S. '15, State Normal; Educational Field Work; Halstead.
 Towne, Roy, A. M. '10, Brown University; French; Topeka.
 Treece, E. Lee, B. S. '16, University of Kansas; Physiology; Centerville.
 Twente, John Wesley, A. B. '10, Missouri Central Wesleyan; Education; Baxter Springs.
 Uhrlaub, Rudolf R., B. S. '18, University of Kansas; Geology; Lawrence.
 *VanVelzer, Harry L., A. B. '20, University of Kansas; Chemistry and Mathematics;
 Fort Scott.
 Warner, John Chester, A. B. '17, Washburn College; Physics; Topeka.
 Wheeler, Mabel Ranney, A. B. '13, University of Southern California; Sociology;
 Lawrence.
 Wheeler, Mayme, A. B. '12, University of Kansas; English; *Guthrie, Okla.*
 Wilson, Allen Ditmars, A. B. '19, University of Kansas; Economics; Chanute.
 Wilson, Elizabeth K., A. B. '12, University of Kansas; Sociology; *Kansas City, Mo.*

TOTAL. 120.

GRADUATE STUDENTS, SUMMER SESSION, 1919.

- Alexander, Henry Jones, A. B. '19, Wilberforce University; Education; Quindaro.
 Alsop, Inez, B. S. '16, Kansas State Normal; History; Wakefield.
 Baldwin, Katrina, A. B. '19, University of Kansas; English; *Kansas City, Mo.*
 Bales, Elsie, A. B. '19, University of Kansas; English; Lawrence.
 Barbee, Frederick H., B. S. '17, University of Missouri; Education; *Kansas City, Mo.*
 Barber, Fred Hayes, A. M. '07, Washburn College; Education; Macksville.

* Seniors who have completed within ten credit hours sufficient work for the A. B. or B. S. degree.

GRADUATE STUDENTS, SUMMER SESSION, 1919—continued.

- Barnes, Nellie, A. B. '16, University of Kansas; English; *St. Joseph, Mo.*
 Bookwalter, Lulu Gertrude, A. B. '08, Otterbein College; Education; Kansas City.
 Brady, Marie Agnes, A. B. '19, University of Kansas; Spanish; *Kansas City, Mo.*
 Brown, William Fayette, A. B. '14, University of Kansas; Entomology; Lawrence.
 Brown, Elizabeth Tenaxi, B. S. '18, State Normal; Chemistry; Emporia.
 Brown, Helen E., B. S. '13, University of Kansas; Education; Delphos.
 Catlin, Florence A., A. B. '09, Wells College; Mathematics; Leavenworth.
 Chambers, Benjamin Franklin, A. B. '02, Baker University; Sociology and Education; *Kansas City, Mo.*
 Chandler, J. R., B. S. '15, State Normal; Education; Kincaid.
 Cook, J. LaVerne, B. S. '16, Kansas Wesleyan; Education; Concordia.
 Crawford, Agnes, A. B. '16, University of Kansas; French; Girard.
 Crotty, Morgan Henrietta, A. B. '14, State Manual Training School; Latin; Pittsburg.
 Decker, A. I., B. S. '18, Kansas State Normal; Education; Fredonia.
 DeLay, Glen A., A. B. '14, Kansas State Normal; Education; Emporia.
 DeWitt, Helen Wright, A. B. '19, University of Kansas; Education; Lawrence.
 Dickerman, Daisy H., Ph. B. '09, Central University of Iowa; Latin and Education; Lawrence.
 Douthitt, Bessie Price, A. B. '18, University of Kansas; Zoölogy; Lawrence.
 Downs, Cora M., A. B. '15, University of Kansas; Bacteriology; Lawrence.
 Elliott, Edward Arthur, A. B. '17, University of Kansas; History; Waverly.
 Ewald, Mark Scheffer, B. S. in Education '14, University of Kansas; Education; Lawrence.
 Fleming, John Allen, B. S. '18, Kansas Manual Training School; Education; Sedan.
 Fite, William Arthur, A. B. '01, Transylvania College; Sociology; *Kansas City, Mo.*
 Foster, Cornelius, B. S. '16, State Normal School; Education and Sociology; Waverly.
 Frisbie, Helen, A. B. '17, University of Kansas; French and English; Grantville.
 Fronk, Mary Rosa, B. S. '15, State Normal School; Sociology; Meriden.
 Gall, Gladys Elizabeth, B. S. '18, State Agricultural College; Home Economics; Spring Hill.
 Godding, Frank E., A. B. '16, University of Kansas; Education and Economics; Lawrence.
 Hadley, J. Wilbur, A. B. '18, University of Kansas; Education; Coldwater.
 Hall, Royal G., A. B. '12, Park College; Sociology; *Parkville, Mo.*
 Harper, Leta Maude, A. B. '11, University of Kansas; English; Lawrence.
 Harrel, Chastain G., A. B. '15, William Jewell College; Chemistry; Lawrence.
 Harris, Annie G., A. B. '06, University of Kansas; Modern Languages; *Warrensburg, Mo.*
 Hartsock, Robert E., B. S. '06, Harvard University; Mathematics; *Stillwater, Okla.*
 Heathman, Lucy, A. B. '19, University of Kansas; Biology; Lawrence.
 Henderson, Clara Gladys, B. S. '17, Kansas State Normal; History; Meriden.
 Hodder, Fredericka, A. B. '13, University of Kansas; English and History; Lawrence.
 Hoffman, William E., A. B. '18, University of Kansas; Entomology; Lawrence.
 Holl, Mary, A. B. '19, Washburn College; Bacteriology; Topeka.
 Hoover, William T., B. S. '98, Missouri State Normal; Education; Mound City.
 Hubbell, Edith, B. S., '98, Kansas Manual Training School; Education and Botany; Lawrence.
 Hudson, Mrs. Mabel S., A. B. '03, University of Kansas; English; Chanute.
 Hunter, Lois, A. B. '18, Southwestern College; Education; Zenda.
 Huston, Harry E. E., A. B. '05, Southwestern College; Education; Winfield.
 Jackson, Luther, A. B. '14, Fisk University; History and Education; Kansas City.
 Jennison, James, B. S. '12, University of Missouri; Zoölogy; *Tulsa, Okla.*
 Johnson, Mrs. Gertrude, A. B. '19, State Normal; History; Severy.
 Kelley, Sherwin F., B. S. '17, University of Kansas; Mining Engineering; Lawrence.
 Korb, J. H., B. S. '19, University of Kansas; Physiology; Lawrence.
 Lewis, Benjamin Parker, A. B. '17, University of Oklahoma; Mathematics; *Amber, Okla.*
 Light, Grace, A. B. '11, University of Kansas; English; Lawrence.
 Malin, James C., A. B. '14, Baker University; History; Lewis.
 Martin, Isaac, A. B. '17, Southwestern College; Education; Pawnee Rock.
 Mattoon, Edith D., A. B. '07, University of Nebraska; English; Lawrence.
 Meyer, Fred W., A. B. '12, State Normal School; Education; Jewell City.
 Marshall, Russell Claire, A. B. '17, Phillips University; Education; *Enid, Okla.*
 Martin, May, A. B. '06, Northwestern University; Education; *Kansas City, Mo.*
 Miller, Esther Caroline, B. S. '14, Oklahoma A. & M. College; Botany; *Helena, Okla.*
 Moore, Irma L., A. B. '06, Campbell College; Education; Holton.
 Moore, Lelia Z., A. B. '06, Campbell College; Education; Holton.
 MacDougall, Ernest D., LL. B. '13, Detroit School of Law; Education and Sociology; Topeka.
 McCord, Theodore E., A. B. '16, Washburn; Education and Mathematics; Topeka.
 McCreath, Catherine, A. B. '13, University of Kansas; Education and Mathematics; Lawrence.
 Nelson, Lawrence Emerson, A. B. '16, William Jewell College; English; *Sioux Falls, S. Dak.*
 Newman, Mildred, A. B. '05, University of Kansas; English and Mathematics; Lawrence.
 Nicholson, Ida Hodgdon (Mrs.), A. B. '97, Emporia Normal; Latin; Lyons.
 Oldfield, Verne Cline, B. S. '19, University of Kansas; Bacteriology; La Cygne.
 Palmer, Alice Helen, B. S. '17, State Normal; Education; Seneca.
 Pasley, H. L., A. B. '15, University of Kansas; Education; Frontenac.
 Payne, Bernice Walker, A. B. '15, Friends University; Education and Languages; Wichita.
 Peters, Gerald Rupert, A. B. '14, University of Kansas; Bacteriology; *Independence, Mo.*
 Phillips, John Foster, A. B. '02, Southwestern College; Mathematics; Winfield.
 Pollard, James Hybert, A. B. '15, William Jewell College; Education; Lawrence.

GRADUATE STUDENTS, SUMMER SESSION, 1919—concluded.

Rabourne, Emma Pauline, A. B. '14, University of Kansas; English; Lawrence.
 Redmond, Mabel Ethel, A. B. '16, University of Kansas; History; Lawrence.
 Renolds, C. E., A. B. '17, Colorado Teachers College; Education; Dunlap.
 Ritter Neva, A. B. '16, University of Kansas; Botany; Iola.
 Ross, Evelyn Louisa, B. S. '18, Kansas State Normal; English; Medicine Lodge.
 Rush, Charles Hiram, A. B. '16, Ottawa University; Education; Cedar Vale.
 Scalapino, William, A. B. '16, Baker University; Education; Everest.
 Schlotterback, Clarence A., A. B. '02, Marietta College; Sociology; Mullinville.
 Seaver, W. D., B. S. '15, State Normal School; Education; Severy.
 Sellers, James L., A. B. '16, University of Kansas; History and Education; Neosho Rapids.
 Shaw, Wayne, F., A. B. '13, State Normal School; Education; Alma.
 Siever, Lecile, A. B. '13, Friends University; English; Wichita.
 Simpson, Charles Hoke, A. B. '00, University of Kansas; Education; Cassaday.
 Smiley, Verna, B. S. '15, Kansas State Normal; Mathematics; Silver Lake.
 Smith Charles Franklin, B. S. '02, State Agricultural College; Education; El Dorado.
 Smith, Maude Ethel, A. B. '04, Cooper College; Education and Mathematics; Sterling.
 Steele, Alice, A. B. '19, Southwestern College; English and Spanish; Winfield.
 Stephens, Winifred, A. B. '17, Kansas City University; English; Kansas City.
 Stewart, Annarrah L., A. B. '19, University of Kansas; English; Lawrence.
 Traster, Olive Maude, A. B. '94, Baker University; German and Latin; Baldwin.
 Sturgeon, Vivian, A. B. '18, University of Kansas; Journalism and Sociology; Lawrence.
 Templeton, Margaret, A. B. '16, College of Emporia; English; Emporia.
 Thompson, Fred M., B. S. '10, State Normal School; Education; Horton.
 Thompson, William R., B. S. '15, State Normal School; Education and Sociology; Halstead.
 Traster, Stella, A. B. '14, Park College; Education and Biology; Fredonia.
 Turner, Mamie A., A. B. '17, Fisk University; English; Topeka.
 Upton, Mina, A. B. '17, University of Kansas; Journalism; Rosedale.
 Wachter, Willard L., A. B. '19, Park College; Botany and Zoölogy; Lawrence.
 Walling, Lalia V., A. M. '07, University of Kansas; Chemistry; Lawrence.
 Weber, Eva, A. B. '06, Iowa State University; English; Hutchinson.
 Wheeler, Mabel Ranney (Mrs.), A. B. '13, University of Southern California; Sociology; Lawrence.
 Wherry, Neal M., A. B. '17, Cooper College; Sociology; Sterling.
 Widener, Letha M., A. B. '19, Southwestern College; Education; Winfield.
 Wilhite, Bessie, A. B. '16, University of Kansas; English and Education; Rosedale.
 Wilson, Hazel Esther, A. B. '18, Southwestern College; History; Leoti.
 Wright, Charles, B. S. '15, Kansas State Normal; Education; Smith Center.

TOTAL, 115.

UNIVERSITY OF ILLINOIS LIBRARY .

OCT 18 1920

THE COLLEGE.

SENIORS.

Abbey, Frank Lincoln, jr.; Newton.
 Akright, James Gladstone; Lawrence.
 Albach, Robert Henry; Lawrence.
 Alexander, Jennie Angeline; Garnett.
 Allen, Earline; La Cygne.
 Ames, Clarinda Josephine; Concordia.
 Anderson, Mary Marguerite; Iola.
 Anderson, Tyson Virgil; Partridge.
 Anderson, Willard Coe; Partridge.
 Armel, Lyle Oliver; Holton.
 Armstrong, Wallace Bruce; *Kan. City, Mo.*
 Bacon, Robert Binford; Hutchinson.
 Bagley, Harriet Robson; *Melbourne, Iowa.*
 Bailey, George Saint; Salina.
 Banker, Martha Tracy; Lawrence.
 Barron, James Lloyd; Phillipsburg.
 Beery, Byron Ashby; Lawrence.
 Bender, Helen Frances; *Okla. City, Okla.*
 Bentley, Leslie Robert; Lawrence.
 Bernhard, Alice Virginia; Lawrence.
 Blake, Harold Loure; Wichita.
 Booher, Inez Violet; Lawrence.
 Boyles, Ruth Irene; Lawrence.
 Branson, Mary Louise; Enreka.
 Broeker, Louise Marie; Lawrence.
 Brown, Helen Margaret; Galena.
 Brown, Karl; Lawrence.
 Brown, Margaret Elizabeth; Lawrence.
 Brown, Ruth P.; *El Paso, Tex.*
 Bruckmiller, Elfrieda Ottilia; *K. C., Mo.*
 Buckles, Doyle Leon; Sedan.
 Burch, Edna Louise; Lawrence.
 Burkholder, Clarence Dewey; McPherson.
 Burnett, Irma Aldine; Linwood.
 Burt, Rita; Leavenworth.
 Caffrey, Helen June; Mt. Hope.
 Calkins, Anna Lorimer; Willis.
 Calkins, Franklin Delmare; Willis.
 Campbell, Lida; Meade.
 Carnie, Charlotte Sophia; *Kansas City, Mo.*
 Chesky, Frank Herbert; Wichita.
 Church, Basil; Lawrence.
 Church, Romulus Bruce; Pittsburg.
 Cissell, Merrill Aikman; Chanute.
 Clark, Kenneth Hadden; Lawrence.
 Coffey, Erval; Lawrence.
 Cook, Geneva Ellen; Lawrence.
 Cook, Julius Edgar; Lawrence.
 Cottrell, Lillian Fern; Irving.
 Cox, Hubert Donald; Cedar Vale.
 Craig, Jessie Emma; Nortonville.
 Cress, Howard Ralph; Clements.
 Daniels, Joe Edward; Paola.
 Davis, George Andrew; Scottsville.
 Dawson, Dorothy; Great Bend.
 Deets, Mildred McClain; *Okla. City, Okla.*
 Dick, Adelaide B.; Lawrence.
 Dill, Mrs. Emma; Lawrence.
 Dodderidge, Philip William; White City.
 Donaldson, John Allison; Garnett.
 Drake, Gladys Edith; Lawrence.
 Drury, Ray Cameron; Newton.
 Edgar, Lucile Anna; Lawrence.
 Emmons, Fern Ora; Manhattan.
 Evans, Nellie Reese; Lawrence.
 Ewing, Ruth Evelyn; Kansas City.
 Farrell, Margaret Elizabeth; Clay Center.
 Ferguson, Samuel Henry; Atchison.
 Fogarty, Angela Julia; Lawrence.
 Foley, Helen Jane; Topeka.
 Forbes, Helen Marguerite; Concordia.
 Frazier, Irma Gilberta; Kansas City.
 Frick, John Paul; *Kansas City, Mo.*
 Frisbie, Edith Adelaide; Bonner Springs.
 Fugate, Annette Keller; Lawrence.
 Garrett, Annette Marie; Lawrence.
 Gempel, Paul August; Leavenworth.
 Gerhold, Ella Mae; Greeley.
 Gibbons, Clara Marie; Topeka.
 Gilmore, Mildred Lucile; Lawrence.
 Glasco, Maude Eleanor; Lawrence.
 Glascock, Calvin Carleton; St. John.
 Gorrill, Galen Alexis; Lawrence.
 Gould, Edythe Esther; Lawrence.
 Grant, Elsie Duffell; *Kansas City, Mo.*
 Griffith, Gladys Katherine; Wichita.
 Gunn, Nellie Edna; Great Bend.
 Hackman, Lucy McFarland; Lawrence.
 Hagen, Beatrice Liberty; Ellinwood.
 Hagen, Ella Jane, Ellinwood.
 Hagen, Maude Barbara; Ellinwood.
 Hall, Harold Read; Pratt.
 Hamilton, Shirley Gonzalez; Lawrence.
 Hammat, Rilla Virginia; Lawrence.
 Hangen, Luther Hale; Wellington.
 Harms, Marvin William; Wichita.
 Harrington, Roscoe Samuel; Augusta.
 Harrison, Estelle May; Hutchinson.
 Hart, Helen; Bonner Springs.
 Hassig, Cecil Edwards; Kansas City.
 Hawes, Anna Virginia; Lawrence.
 Hay, Louis; Eskridge.
 Hays, Claude Arthur; Lawrence.
 Heath, Alan Earl; Tescott.
 Heath, Milton Sydney; Burns.
 Helwig, Ferdinand Christian; Kansas City.
 Hereford, Melvin; Wichita.
 Heron, William Thomas; Burns.
 Herr, Opal Angeline; Medicine Lodge.
 Herriott, James Homer; Garden City.
 Hibbard, Helen Louise; Cherryvale.
 Hill, Aeo; Neodesha.
 Hill, Mary Muriel; *Kansas City, Mo.*
 Hipple, Mildred Mary; *Kansas City, Mo.*
 Hitchcock, Mary Lucile; Lawrence.
 Hockenhull, Floyd Langley; Lawrence.
 Hollis, Edgar Leon; Fredonia.
 Hopkins, Vivian Erdene; Kansas City.
 Hornaday, Florence Caroline; *Udell, Ia.*
 Horr, Worthie Harold; Lawrence.
 Horton, Helen Gilberta; McPherson.
 Hower, Virgil Allen; Salina.
 Hudson, Marjorie; Fredonia.
 Hunt, Lois Mary; Conway Springs.
 Hunter, Dresden Bryan; Norwich.
 Hussey, Glenn D.; Topeka.
 Isenberger, Nathan Perry; Salina.
 Jacks, Eva; Wichita.
 Jackson, Helen Elizabeth; Kansas City.
 Jacobs, Elijah Lawrence; McCune.
 Jenkins, Fred B., jr.; *Kansas City, Mo.*
 Jeter, Hugh; Alden.
 Jette, Harold Bertrane; Kansas City.
 Joachim, Jerome; Lawrence.
 Johnson, Thurston Leonon; McPherson.
 Jordan, Mayme Geraldine; Glasco.
 Joslin, Leeman Charles; Bavaria.
 Kabler, Jesse Dickinson; Cleveland.
 Kampert, George Joseph; Seneca.
 Kelsey, Ruth; Jewell.
 Kinney, Agatha Pearl; Lawrence.
 Kirchner, Arthur Earl; Lawrence.
 Kirkpatrick, Ramona Elizabeth; Topeka.
 Kirkpatrick, William Ashby; Oswego.
 Klapmeyer, Florence; *Kansas City, Mo.*
 Klepinger, Myrl Marie; Rosedale.

SENIORS—concluded.

- Knott, Florence; De Soto.
 Kohman, Frances Miriam; Dillon.
 Landon, Charles Earl; Mayetta.
 Landon, Ira; Mayetta.
 Larimore, Ogilvie Miller; Clifton.
 Laslett, Howard; Lawrence.
 Law, Seaton Marcellus; Lawrence.
 Lockwood, Ava Patricia; St. Francis.
 Lodge, Julia Margaret; Kansas City.
 Long, Henry Johnson; *Cashion, Okla.*
 Longstreth, Guy Vernon; Colony.
 Lutz, Elizabeth Jane; Holton.
 Lyman, George; Moline.
 Lyne, James Garnett; Herington.
 Lyon, Garrett Brown; Wellington.
 MacGregor, Gladys Margaret; Medicine
 Lodge.
 Magers, Henry Brady; Winchester.
 Mann, Delbert Martin; Lawrence.
 Markley, Elmer A.; Atlanta.
 Maroney, Frank Edwin; Attica.
 Martin, Raymond Ellsworth; Winfield.
 Matthews, Violet Eugenia; Topeka.
 Melville, Marguerite Vera; Eudora.
 Melvin, Miriam Virginia; Lawrence.
 Messing, Alma; Ashland.
 Metsker, Sonora Tulena; Lawrence.
 Miller, James Ellsworth Burney; Iola.
 Mitchell, Basil Lyman; Burlington.
 Montgomery, George A.; Mankato.
 Morrison, Etna Frances; Newton.
 Mowrer, Ernest Russell; Lost Springs.
 Myers, Ralph Maness; Alden.
 McBratney, Nellie Evelyn; Centralia.
 McCullough, Anna Marie; Paola.
 McIlhenny, Robert Campbell; Conway
 Springs.
 McNutt, Eloise; *Kansas City, Mo.*
 McPherson, Hobart Mervin; Lawrence.
 Naismith, Helen Caroline; Lawrence.
 Nelson, Ellen Eustina; Manhattan.
 Nettels, Charles Henry; Topeka.
 Noah, Lucile Allen; Hutchinson.
 O'Brien, Shamus; Lawrence.
 Oglevie, Rial Richardson; Burr Oak.
 Osborne, Harriet Corrinne; Wichita.
 Oyster, Frank Alexander; Paola.
 Pate, Clarence Hugh; Walnut.
 Patterson, Blanche Lyndell; Lawrence.
 Patterson, Elsie Fay; Abilene.
 Patterson, Frank B.; Atchison.
 Pattinson, Darwin G.; Hutchinson.
 Pearson, Lydia Christin; Lawrence.
 Peek, Milton Leroy; Arkansas City.
 Perkins, Alice Louise; Kansas City.
 Perry, Evangeline; *Albuquerque, N. Mex.*
 Peters, Hazel Arissa; Lawrence.
 Peterson, John Oscar; Assaria.
 Pittman, Clara Amanda; Liberal.
 Pitter, Emily Marie; Lawrence.
 Preble, Fred Clarence; Hutchinson.
 Preder, Vera Musetta; Atwood.
 Price, Hazel B.; McLouth.
 Ramsey, Mabel Ester; Garnett.
 Reaugh, Hazel Marie; *Savannah, Mo.*
 Reed, Francis Santry; Newton.
 Reed, Garnett Workman; *Kansas City, Mo.*
 Reed, Katharine Marie; Lawrence.
 Reid, Marion Clarence; Newton.
 Reynolds, Olive; Holton.
 Rice, William Ivan; Lawrence.
 Riggs, Hazel May; Lawrence.
 Riley, Ray Jeanette; Lawrence.
 Robb, Helen Irene; Clay Center.
 Roberts, Harold Moore; La Harpe.
 Robertson, Blanche Elizabeth; *K. C., Mo.*
 Robertson, Katherine Vina; *K. C., Mo.*
 Rodgers, Mrs. Gertrude Octavia Palmer;
 Lawrence.
 Rodkey, Ralph Darwin; Blue Rapids.
 Roop, Charles William; Abilene.
 Rosecrans, Vincent Judson; Winfield.
 Ross, Wanda May; *Oklahoma City, Okla.*
 Ruhlandt, Helen Hays; Osawatomie.
 Russell, Iris; Kansas City.
 Sallee, Flora Myrtle; Hutchinson.
 Samson, Mary Henrietta; Topeka.
 Sawyer, Maren Berdine; *Kansas City, Mo.*
 Schaible, Ethel Ferne; Fairview.
 Schick, Fern; Lawrence.
 Schreiber, Fred Carl; Leavenworth.
 Schwartzkopf, Edward A.; Bison.
 Schweizer, Hortence; Wichita.
 Scofield, Margaret; Beloit.
 Scott, Eva Mabel; Solomon.
 Selig, August Lewis; Lawrence.
 Semon, Florence Margaret; Lawrence.
 Sharp, Oscar; Pittsburg.
 Shaw, James Wallace; Topeka.
 Shire, Sara Ruth; Lincoln.
 Shores, Belva Agnes; Burr Oak.
 Sibbett, Charlie Roger; Protection.
 Simon, Carl Ludwig; Preston.
 Slawson, Charles Julius; Girard.
 Smith, Bert C.; Pawnee Rock.
 Smith, Erma Anita; Sharon.
 Smith, Vera Grace; Morland.
 Smith, Vernon David; Lawrence.
 Smith, Wint; Mankato.
 Staley, Kathryn Elizabeth; Richmond.
 Stanley, Arnold Archibald; Lawrence.
 Steininger, Edith; Chapman.
 Sterling, John Andrew; Lawrence.
 Sterling, Lucile; Lawrence.
 Sterling, Pauline; Lawrence.
 Stevenson, Edward; Lawrence.
 Stevenson, Wayne Bernice; Lawrence.
 Stewart, Harry Martin; Turon.
 Stimmel, Robert Marion; Mullinville.
 Stone, Henry Nathaniel; Kansas City.
 Studer, Mrs. Jessie Ruth Foster; Lawrence.
 Studer, William Joseph; Lawrence.
 Swanson, Lillian Victoria; Marquette.
 Sweet, Cyra E.; *Kansas City, Mo.*
 Sweigart, Gladys Naomi; Kansas City.
 Taylor, George Emmett; Burlingame.
 Taylor, James Ross; Oskaloosa.
 Tester, Allen Crawford; Coffeyville.
 Thompson, Hallie Armida; Lawrence.
 Thompson, Martha; *Kansas City, Mo.*
 Thralls, Warren Harrington; Wellington.
 Tihen, Irene Beatrice; Andale.
 Timmins, Vaughn Earl; Kansas City.
 Torrey, Alden Hamilton; Kansas City.
 Trant, Ruth Mary; Edwardsville.
 Traul, Ruth Irene; La Cygne.
 Triplett, Roger; Emporia.
 Uhrlaub, Ernst August; Lawrence.
 Underwood, Fay; Lawrence.
 Vail, Helen Robison; *St. Joseph, Mo.*
 Van Sandt, Marguerite Eileen; Chanute.
 Van Velzer, Harry Leland; Fort Scott.
 Vermillion, Una; Tescott.
 Voorhees, Claude Harold; Lawrence.
 Walters, Velma Mary; Wakefield.
 Ward, Winifred Emily; Lawrence.
 Watkins, Mary Elizabeth; *St. Joseph, Mo.*
 Watson, Bertha; Minneapolis.
 Watt, Evelina Frances; Ellsworth.
 White, Edith Kathryn; Lawrence.
 Whitehead, Ennis Clement; Westphalia.
 Wilbur, Clifford Henry; Lawrence.
 Willems, Leonard Carnody; Lansing.
 Wilson, Webb; Horton.
 Wineinger, William Wesley; Fort Scott.
 Wing, Monta Eldo; Columbus.
 Wright, Agnes Mack; McPherson.
 Wyatt, Jessie Lee; Lawrence.
 Yeater, Georgia Rains; Lawrence.
 Zenor, Helen Skelton; *Kansas City, Mo.*

JUNIORS.

- Adams, Marguerite; Lebanon.
 Ainsworth, David; Wichita.
 Alexander, Maye Marie; Lawrence.
 Alter, Mrs. Ada McClelland; Lawrence.
 Anderson, Ila Edna Louise; Lawrence.
 Anderson, John Wesley; Salina.
 Anthony, Daniel Read; Leavenworth.
 Anthony, Laura Gladys; LeLoup.
 Applegate, Aymee Agnes; Lawrence.
 Armel, Dorothy Jeannette; Humboldt.
 Armel, Nathaniel Amos; Humboldt.
 Armstrong, Housen Parr; Atchison.
 Armstrong, Ruth Irene; McPherson.
 Auchard, Virgil Marion; Lawrence.
 Babgy, Grace; Lawrence.
 Baker, Fressa Sample; Wichita.
 Baldwin, Wilber Clifton; McPherson.
 Barnett, Helen Regina; Rosedale.
 Baskett, Roy F.; Holton.
 Baum, Theresa Rosa; Galena.
 Beeler, Nellie Eleanor; Mankato.
 Beiderwell, Earl R.; La Harpe.
 Bell, Francis Eola; Leavenworth.
 Bell, Kenneth G.; Lawrence.
 Bennett, Arthur Harry; Topeka.
 Bennett, James Lawton; Iola.
 Bennett, Roy Sutton; Iola.
 Bernstein, Julius; Lawrence.
 Berry, Merlin Smith; Mankato.
 Beyer, Lilah; Arrington.
 Blackburn, Glessie D.; Stafford.
 Blair, Donald C.; Beloit.
 Blanke, Otto Theodore; Garden City.
 Bleakley, Georgina E.; Lawrence.
 Blodgett, Warren Mandeville; *S. Bend, Ind.*
 Boese, Adolph; Hillsboro.
 Boone, George Franklin; Manhattan.
 Bowman, Mrs. Earl M.; Lawrence.
 Boyd, Joseph Warren; Arkansas City.
 Boyer, Guy Maxwell; *Kansas City, Mo.*
 Boyle, Joseph Essig; Bennington.
 Braly, Homer Benjamin; *Nardin, Okla.*
 Breitag, Emma M.; *Kansas City, Mo.*
 Bronaugh, LaVerne; *Kansas City, Mo.*
 Brown, Dudley Buck; Halstead.
 Brown, Marie Alberta; Lawrence.
 Brubacher, Margaret; Wichita.
 Brueck, William Thomas; Paola.
 Brune, Frank Ezra; Lake View.
 Bryan, W. Leigh; Lawrence.
 Burke, Lois Louise; Lawrence.
 Bushnell, Hilda Corinne; Mound Valley.
 Butcher, Fred D.; Lawrence.
 Butcher, Seldon D.; Lawrence.
 Calvert, Frederick William; Plains.
 Carey, Walter Ray; Osage City.
 Carlgren, Florence; Concordia.
 Carlin, Helen Margaret; Salina.
 Carroll, Matthew Eldridge; Kansas City.
 Carter, Esther Marian; Garden City.
 Carter, Jean Cranston; Lawrence.
 Case, Goldie Ruth; Arkansas City.
 Case, Naomi Marie; Arkansas City.
 Casford, Ralph Shelton; Bird City.
 Cates, Gladys; Iola.
 Chain, Edna; Wichita.
 Chambers, Adelbert R.; Tescott.
 Chambers, Helen Louise; Lawrence.
 Chaplin, Gladys Albertina; Edgerton.
 Chapman, Lorette; Kansas City.
 Christoff, Minnie; Kansas City.
 Clark, Ethel C.; Mankato.
 Clark, Harry Ernest; Lawrence.
 Clark, William Dorman; Utica.
 Cleveland, Lucile; Howard.
 Coghill, Robert DeWolf; Lawrence.
 Convis, Dallas Laverne; Burr Oak.
 Coons, Carl; Lawrence.
 Cooper, Lloyd Frank; Hoxie.
 Correll, Loretta Pauline; Atwood.
 Cox, Mabel Iolene; Lawrence.
 Crim, Virginia Dickinson; Lawrence.
 Dade, Emil Bryan; Nickerson.
 Daniels, Andrew Guy; Pawnee Rock.
 Davis, Kathleen; Lawrence.
 Davis, Kenneth Albert; Morganville.
 Davis, Ruth; *Kansas City, Mo.*
 Day, Opal; Wichita.
 Decker, Helen Margaret; Oskaloosa.
 DeForest, Carol Holmes; Wetmore.
 Derge, Dorothy; Lebanon.
 DeTar, Burleigh Eli; *Miami, Okla.*
 Dewey, Charles Homer; Elk City.
 DeWolf, Henry Franklin; Garnett.
 Diver, Robert Warren; Humboldt.
 Dresslar, Elmer; Mankato.
 Earlenbaugh, Lawrence E.; Claflin.
 Eaton, Mark M.; Erie.
 Eberlein, Marcia; *Joplin, Mo.*
 Elliott, Dempsey Walter; Lawrence.
 Elliott, Glenn Smith; Bronson.
 Ellsworth, Willoughby Fred; Mound City.
 Elmore, Theda Mize; Lawrence.
 Engel, Dorothea Louise; Lawrence.
 Engel, Herman Busch; Lawrence.
 Evans, Ralph W.; Leavenworth.
 Eytchison, Vivian Belle; Onaga.
 Farnsworth, Lewis George; Cullison.
 Fearing, Bascom Coolidge; Burr Oak.
 Felt, Margaret Rebecca; *Kansas City, Mo.*
 Fengel, Jessie Frances; Abilene.
 Ferris, Florence Evelyn; Lawrence.
 Firestone, Maurine Estelle; Wichita.
 Fish, Lillian V.; Lawrence.
 Fitzgerald, Julia Marcella; Jamestown.
 Fitzsimmons, Catherine Teresa; Rosedale.
 Flack, Herron Thomas; Fredonia.
 Flagg, Frances Marianne; Lawrence.
 Fleen, Emma Ida; Baldwin City.
 Flynn, Frances Helene; Humboldt.
 Foley, Catherine Mary; *Kansas City, Mo.*
 Forman, George William; Altou.
 Fox, Lenore Sarah; Greeley.
 Fugate, Josephine; Lawrence.
 Garrison, Joseph Russell; Garnett.
 Gaskill, Grace Helen; Lawrence.
 Gelvin, Clyde Richardson; Lawrence.
 Gillis, Bessie Beatrice; Garnett.
 Girard, Edward Green; Windom.
 Glasgow, Harriet Clark; Fort Leavenworth.
 Goss, Clark Cleo; Harper.
 Gottlieb, Ferdinand; Pleasanton.
 Graham, Eugene Broderick; Holton.
 Graves, Alfred James; Dodge City.
 Gray, Ralph Monzingo; Summerfield.
 Greef, Albert Otto; Pittsburg.
 Griffith, William Henry; Pratt.
 Grimsley, Bernice; Burlington.
 Gross, Peter Samuel; *Kansas City, Mo.*
 Grossenbacher, Margaret; Bern.
 Gunn, Everett; Nickerson.
 Haelsig, Otto Herman; Eudora.
 Haines, Howard Wright; Baxter Springs.
 Haines, Jean Rathburn; Galena.
 Hall, John Austin; *Amsterdam, Mo.*
 Handley, Leon Lampton; *Kansas City, Mo.*
 Hanlon, Earl Strong; Sterling.
 Hanna, Marcus A.; Lawrence.
 Harms, Herbert A.; Wichita.
 Harrison, William Henry; Downs.
 Hart, George Marion; Lawrence.
 Hart, Helen; Wichita.
 Hawkins, Mary Beatrice; *Lamar, Mo.*
 Hay, Laurence Charles; Paola.
 Hayslip, Elizabeth Elmina; Bethel.
 Heim, George Frederick; Ellinwood.
 Heizer, Charles; Osage City.
 Helman, Richard Graham; *Kan. City, Mo.*

JUNIORS—continued.

- Heren, Walter Graff; Lawrence.
 Hill, Dannie Mae; Lawrence.
 Hill, Ormond Perley; Lawrence.
 Hitchcock, William H.; Augusta.
 Hobbs, Russell Eugene; Wichita.
 Hodson, Emery Loyd; Wichita.
 Hoffman, Paul Davidson; Abilene.
 Hogg, Ira Dwight; Delphos.
 Holmberg, Corinne; Peabody.
 Hopper, Otto Emanuel; Sylvan Grove.
 Hosford, Helen Rebekah; *Monticello, Iowa*.
 Hostetter, Lucky Wingert; Wellsville.
 Howard, Marian Ruth; Cottonwood Falls.
 Hubbard, Lena Irene; Minneapolis.
 Huff, Bonnie Mae; Preston.
 Hughes, Charles Donald; Lawrence.
 Hughes, Lawrence Dwight; Lawrence.
 Hunter, Geneva Campbell; Lawrence.
 Hunter, Julia Mary; Galena.
 Husted, Frank Gardner; *Osecoola, Mo.*
 Ishmael, Marjorie Ellen; Kiowa.
 Jackson, Agnes Lucretia; Kansas City.
 Johnson, Samuel Chester; Pittsburg.
 Johnston, Virginia May; Lawrence.
 Jones, George William; Council Grove.
 Jordan, Ella Marie; *Cheyenne, Wyo.*
 Jordan, Gladys Dolores; Glasco.
 Joslin, Donald Edward; Hugoton.
 Kaylor, Payton Hobert; Fort Scott.
 Keck, Kenneth Fielman; *Wapello, Iowa*.
 Keefer, Kathryn; Olathe.
 Kennedy, Frances Winifred; Lawrence.
 Kennedy, Harriett Brush; Lawrence.
 Kepler, Dorothy Frances; Lawrence.
 Keys, Hollis Dodge; Beloit.
 Kiefer, Everett Duane; Lawrence.
 Kistler, John Joseph; Alta Vista.
 Koehring, Dorothy May; Lawrence.
 Kugler, Ernest William; Abilene.
 Kunkel, Gladys Irene; Lawrence.
 Lacy, Blanche Mary; Anthony.
 Lake, Inez; Lake City.
 Langston, Kathryn Lee; Wichita.
 Lashley, Floyd Johnson; Girard.
 Law, Florence Mildred; Lawrence.
 Layman, Hazel Bernadine; Hutchinson.
 Leavel, Ormand Ward; Leavenworth.
 Lee, Frank Nelson; Kansas City.
 Lee, George Raymond; Yates Center.
 Lewis, Marion Florence; Lawrence.
 Liggett, Winfield Freeman; Kansas City.
 Little, Harley C.; Abilene.
 Little, Herbert Bleviss; Lawrence.
 Lonergan, Flora Estella; Topeka.
 Long, Gladys; *Kansas City, Mo.*
 Mack, Alberta; Lawrence.
 Magill, Van Hooper; Lawrence.
 Malott, Deane Waldo; Abilene.
 Mandeville, Frank P.; Kingman.
 Marshall, Earl Elmore; Elk City.
 Marshall, Vivian; Leon.
 Mather, Edward; Centralia.
 Matticks, Dorothy Jane; Lawrence.
 Maupin, Oakland Lee; *Carrollton, Mo.*
 May, Elmer Lawson; Hutchinson.
 Merritt, Florence Maude; Lawrence.
 Miller, Blanche Helen; Lawrence.
 Miller, Howard Leslie; Chanute.
 Miller, Mary Louisa; Iola.
 Minger, Ethel Louise; Bern.
 Montgomery, Hazel Ruth; *Kansas City, Mo.*
 Montgomery, Robert Hargrove; Lawrence.
 Moren, Dorothy Celia; Lawrence.
 Morgan, Jane; *Kansas City, Mo.*
 Morgan, Muzelle; *Kansas City, Mo.*
 Mowrer, Loren Edgar; Lost Springs.
 Musser, Rollin Dwight; Jewell.
 McBride, Edna; Lawrence.
 McClung, Ruth Cromwell; *Wash., D. C.*
 McCort, Waldo; Anson.
 McDonald, Ira Malcolm; Lawrence.
 McFadden, Norma; *Nevada, Mo.*
 McIntire, George Franklin; Wichita.
 McKibbin, Harry Clinton; Lawrence.
 McKinney, Marie Murr; Hoxie.
 McPherson, William Lindsay; Wichita.
 Naster, Samuel; Lawrence.
 Nelson, Irl; Lawrence.
 Nelson, Marguerite Isabel; *Okla. City, Okla.*
 Nettels, Curtis Putnam; Topeka.
 Nevitt, James Russell; Mildred.
 Nichols, Helen Mavis; *Savannah, Mo.*
 Nichols, Lois Eva; Pawnee Rock.
 Nicholson, Helen Julia; Lawrence.
 Nicolet, Charles Cathcart; *Kan. City, Mo.*
 Nigg, Clara Ida; Lawrence.
 Nye, Harold Stafford; Baldwin City.
 Oder, Catherine Louise; Lawrence.
 O'Donnell, John Edgar; Ellsworth.
 Olsen, Grace Marguerite; Lawrence.
 Olsen, Mary Carolyn; Lawrence.
 Olson, Helen Edith; Topeka.
 Orr, Francis Currie; Lawrence.
 Owens, Dorothy May; Lawrence.
 Owens, Kathrine Marie; Oxford.
 Owens, Seth Jenkins; Effingham.
 Parker, Knowlton; Robinson.
 Peacock, Vera Maude; Blue Rapids.
 Pease, Cecil Clair; Topeka.
 Peck, Helen Jule; Arkansas City.
 Peckham, Edwina; Lawrence.
 Pelton, Clara Alice; Caldwell.
 Pendleton, Theodore Poehler; Lawrence.
 Perkins, Alice Minerva; Howard.
 Philipp, Herman Joseph; Wichita.
 Phillips, Jean Anne; Wichita.
 Platz, Charles Ruffel; Eudora.
 Porter, John McGill; Topeka.
 Pounds, Donna Vivian; Coldwater.
 Pulliam, Paul Emmett; Lyons.
 Pumphrey, Orpha; *Fort Worth, Tex.*
 Quinlin, Virginia Josephine; Lawrence.
 Quinn, Grace Katherine; McPherson.
 Radotinsky, Ida; Kansas City.
 Ramseyer, Margaret Josephine; Emporia.
 Rankin, Zella Margaret; *Albuquerque, N. Mex.*
 Ransom, Turner Payne; Wichita.
 Rarig, Edith Lucile; Minneapolis.
 Reiber, Eva Mary; Emporia.
 Rhodes, Pauline Ann; Lawrence.
 Rice, Alice; Lawrence.
 Rice, Anita Bertha; Lawrence.
 Rinehart, Hattie; Lawrence.
 Ringle, Lloyd Clinton; Pittsburg.
 Rising, Edna Rose; Lawrence.
 Ritter, Cassandra; Iola.
 Robinson, Cecelia Margaret; Potter.
 Rogers, Whitson Golton; Wellington.
 Rosenfield, Josephine Helen; *Oklahoma City, Okla.*
 Rourke, George W.; Topeka.
 Royer, Beula Anna; Gove.
 Sadler, May Irene; *Kansas City, Mo.*
 Samuel, Mary Elizabeth; Hiawatha.
 Schafer, Sidonie Pauline; McPherson.
 Schoppe, Charles Vernon; *Pierce City, Mo.*
 Schumann, Margaretha; Lawrence.
 Schwarz, Joseph J.; Lawrence.
 Schweizer, Paulena; Wichita.
 Scott, Anna Louise; Burlington.
 Shafer, Jeannette; Colby.
 Shaklee, Marie Elsie; *Waukomis, Okla.*
 Shaw, Verna Mae; McPherson.
 Shelley, Dorothy Elizabeth; Elmdale.
 Sheppard, Reba Ellen; *Lamar, Mo.*
 Shout, Leland Morton; Lawrence.
 Silver, Helen Rachel; Morganville.
 Slavens, Hortense B.; Neosho Falls.
 Smith, Anna Simmons; Lawrence.

JUNIORS—concluded.

- Smith, Bessie; Pratt.
 Smith, Frederick Agestein; *Lamoni, Iowa*.
 Smith, Lola B.; Lancaster.
 Smith, Meda Estella; Paola.
 Smith, Theodore Soper; Kansas City.
 Smith, Xenophon Palmer; *Omaha, Neb.*
 Smith, Zuma Zeda; Kansas City.
 Sneed, Gladys Lucile; Council Grove.
 Songer, Irene Maud; *Kansas City, Mo.*
 Spencer, Ray Paul; Lawrence.
 Stacey, Frank Baker; Leavenworth.
 Standly, Harold Griffin; *Laclede, Mo.*
 Stannard, Lillian May; Emporia.
 Statler, Katherine C.; Strong City.
 Stauffer, Nina Aldeau; Randall.
 Steininger, Vera Margaret; *St. Joseph, Mo.*
 Stiver, Una Mary; Council Grove.
 Stone, Anna; Lawrence.
 Strain, John Albert; Clyde.
 Strand, Lillie Oliva; Independence.
 Strickland, Frances Wright; Hunnewell.
 Strong, Muriel; Lawrence.
 Swenson, Gilbert Oscar; Topeka.
 Syster, Ruth Isabelle; Hiawatha.
 Taylor, Daisy Marita Bishop; *K. C., Mo.*
 Taylor, Edwin Moses; Hoxie.
 Taylor, Sarah Augusta; Topeka.
 Teeter, Clifford Loraine; Dodge City.
 Tenney, Asa Clifford; Lawrence.
 Thompson, Edward Walter; Topeka.
 Thompson, Helen Louise; *Kan. City, Mo.*
 Thurston, Helen Margaret; Kansas City.
 Tiemann, Frieda Eulalia; Ellinwood.
 Tomlinson, Victor Rees; Independence.
 Trusdale, Grace; Emporia.
 Tucker, Jack; Lawrence.
 Tulloss, Ruth Margaret; Ottawa.
 Tunney, Hubert James; Kingman.
 Vaughn, Hugh Jerome; Winfield.
 Walbridge, Caroline K.; Russell.
 Warring, Kathleen Frances; *Kan. City, Mo.*
 Wasson, Margaret E.; *Cleveland, Okla.*
 Weber, Otto L.; Kansas City.
 Weibel, Nadene; Lawrence.
 Welty, Donald Regnier; *Bartlesville, Okla.*
 Wenzel, Anna Marie; Herndon.
 White, Florence Luteia; Hutchinson.
 White, Maceo Antonio; Arkansas City.
 Wilcox, Fred James; Lawrence.
 Wilkerson, Vernon Alexander; Kansas City.
 Williams, Esther; Pawnee Rock.
 Williams, Frederic Calvin; Lawrence.
 Williams, Harriett Leah; Preston.
 Williams, Lillian Burnette; *La Junta, Colo.*
 Wilson, Gail Elery; Beloit.
 Wine, Mildred; *Kansas City, Mo.*
 Wingate, Marguerite Perkins; Lawrence.
 Wirth, Bernard A.; Red Wing.
 Wishard, Mary Elizabeth; Iola.
 Woodward, George; Lawrence.
 Yap, Benjamin Tsun; Lawrence.
 Young, Percy; Lawrence.

JUNIORS, 378.

SOPHOMORES.

- Achning, Walter John; Lawrence.
 Adams, Kenneth Stanley; Kansas City.
 Adams, Randolph B.; Topeka.
 Akers, Merton T.; Lawrence.
 Alford, David Robert; Leavenworth.
 Allanson, Ruth Clarice; Lawrence.
 Allen, Cleo Marie; Lawrence.
 Anker, Pauline Josephine; Lawrence.
 Ashley, Byron John; Pleasanton.
 Atkinson, Janet; Lawrence.
 Austin, James Barker; Cottonwood Falls.
 Ayers, Glen Zella; Alma.
 Back, Fred Charles; Ellinwood.
 Bainum, Ella Marguerite; *Kan. City, Mo.*
 Baker, Marcia Helene; Wichita.
 Ball, Cocha Mae; Mapleton.
 Bamberger, Bernice Fay; Fort Scott.
 Barbee, Harriett Blanche; Pratt.
 Barnes, Lydia Belle; Burlington.
 Barrett, William Wilson; Concordia.
 Battersby, Editha Marie; Kansas City.
 Baum, Ernest Eldon; Kansas City.
 Beal, Beatrice Sadie; Hamilton.
 Beasley, Prentis Sargent; Liberal.
 Bechtel, Lena Guinness; Fairview.
 Beck, Ruth Elizabeth; Lawrence.
 Bedell, Charles Otis; Lebo.
 Beery, Virginia; Lawrence.
 Bell, Rachel Janet; Great Bend.
 Benson, Judd Charles; Wakeney.
 Bernard, Clarence Rolla; *Cherokee, Okla.*
 Billingsley, John A.; Kansas City.
 Bingaman, Esther Lienne; Ottawa.
 Bingham, Dwight Hemenway; Junction City.
 Bingham, Florence Arnold; Junction City.
 Binney, Robert Franklin; *Strawn, Tex.*
 Bishop, Melvin Paul; Lawrence.
 Black, Emil Eugene; Lawrence.
 Blair, Charles Allen; Topeka.
 Blaker, Walter Smith; Pleasanton.
 Bliss, Florence E.; Lawrence.
 Block, Clarence Isaac; Moundridge.
 Bloom, Helen Louise; Independence.
 Bloss, Stewart Scott; Winfield.
 Boughton, Ruth Gertrude; Lawrence.
 Bowman, Earl McKinley; Lawrence.
 Boyer, Irene Leona; *Kansas City, Mo.*
 Bracken, Frank Cuppage; Glasco.
 Bracken, Marie Edith; *Kingfisher, Okla.*
 Bradley, Everett L.; *Cherokee, Okla.*
 Bradley, Orval; *Cherokee, Okla.*
 Bramwell, Dan Dana; Belleville.
 Brown, Donald Scott; Circleville.
 Brown, Lela Lucile; Lawrence.
 Brown, Mary Louise; Lawrence.
 Brownback, Leanoire; Hardtner.
 Browne, Vera Elizabeth; Lawrence.
 Broyles, Watkins Andrew; Lawrence.
 Brueckmann, Erna Martha; *Kan. City, Mo.*
 Buchner, Mary Elizabeth; Millville.
 Buckles, John Abraham; Soldier.
 Burnett, Dorothy Lois; Linwood.
 Bush, Hattie; Lawrence.
 Calene, Raymond Millard; Sylvan Grove.
 Calhoun, Donald Barbour; Fort Scott.
 Campbell, Frances; Stanley.
 Campbell, Helen Mildred; Lawrence.
 Campbell, Lyle Edgerly; Lawrence.
 Campbell, Merrill Raymond; Lawrence.
 Carlson, Russell Conwell; Chautau.
 Case, Maggie Iva; *Blackwell, Okla.*
 Casey, Marian Elizabeth; Atchison.
 Cavanaugh, Ruth Lois; Dighton.
 Cavender, Bernice Hildred; Wellsville.
 Challis, Kathryn; Atchison.
 Challis, Lucy Van Hoesen; Atchison.
 Chambliss, Edward Lawrence; *K. C. Mo.*
 Chandler, Grace May; *Okla. City, Okla.*
 Chandler, Stephen S.; Ottawa.
 Chestnut, Early Mast; Kincaid.
 Christine, Dorothy Doyné; Lawrence.
 Church, Verne Vezie; Lawrence.
 Clarke, Jean; La Cygne.
 Clements, Homer McKinley; Olathe.
 Cline, William Tullus; *Kansas City, Mo.*
 Clingman, Talbot Foster; Lawrence.
 Cochran, Burt Emerson; Wichita.

SOPHOMORES—continued.

- Cochran, Dorothy; Wichita.
 Coen, James Randolph; St. John.
 Cole, Lucile Jeanette; Lawrence.
 Coleman, Grace; Leavenworth.
 Collins, Raymond Joy; *Boyer, Colo.*
 Conboy, Marie Sarah; Stilwell.
 Conkling, Gerald Marsh; Lyons.
 Conner, Irene May; Lawrence.
 Converse, Helen Ruth; Altoona.
 Cooksey, Warren B.; Lawrence.
 Copeland, LeRoy N.; Lawrence.
 Copeland, Shirley Juanita; La Cygne.
 Cottrell, Ray Noel; Chanute.
 Coulter, Catherine Eleanor; Eureka.
 Crandall, Lolo Isabel; LeRoy.
 Crawford, Hazelle; Winfield.
 Croft, Fairfield Bloomington; Lawrence.
 Crompton, Neva Margaret; Ellis.
 Custer, Cecil Cicero; Cedarvale.
 Dana, Jessie Ellen; Lawrence.
 Dana, Marshall; Lawrence.
 Davidson, George Allen; Lawrence.
 Davis, Chauncey Milton; Lawrence.
 Davis, Ralph Allison; Holton.
 Davisson, Dewey McKinley; Lawrence.
 Day, Willard Leslie; Abilene.
 Degen, William Harold; *Kansas City, Mo.*
 Derington, Valma Ordene; Hunnewell.
 Desmond, William Myron; Greeley.
 Dickinson, Edward Stanley; Burlington.
 Dilley, Charles A.; Alta Vista.
 Docking, Alice; Lawrence.
 Dodd, Harry Joseph; Waverly.
 Doering, Kathleen Clara; Lawrence.
 Dougherty, Eulalia; Logan.
 Dougherty, Norma Jo.; *Muskogee, Okla.*
 Dowell, Frank Simeon; Lawrence.
 Drake, Ralph Lafayette; Fort Scott.
 Drew, Gladys; *Enid, Okla.*
 Dunakin, Gladys Lillian-Adell; Lawrence.
 Dunn, Paul Burnett; Kansas City.
 Dutton, Stella Alegria; Lawrence.
 Eastwood, Loraine; *Okmulgee, Okla.*
 Eddy, Murray Chadwick; Colby.
 Eggleston, Edward Earl; McLouth.
 Elliott, Maude Herriott; Lawrence.
 Ellis, Vernon Clinton; Iola.
 Engle, Dorothy May; Abilene.
 Erskine, Vincil Edwin; Winfield.
 Estes, Arlie Wilber; Stafford.
 Etheridge, Hinda; Galena.
 Farrell, Sarah Louise; Lawrence.
 Faulders, Faith Amelia; El Dorado.
 Felton, Albert Glenn; Arkansas City.
 Ferris, Caryl Ray; McPherson.
 Fleenor, Harry Miles; Lecompton.
 Fleenon, Doris; Sterling.
 Flickinger, John Perry; Wichita.
 Flinn, John Piercy; Chanute.
 Forney, Leone; Abilene.
 Fratcher, Charles Henry; *Kan. City, Mo.*
 Frederick, Byron Clifford; Bonner Springs.
 French, DeKoven Alexander; Kansas City.
 Fridell, Myrtle Louise; Robinson.
 Fridell, Ralph George; Robinson.
 Frost, Inez Ochel; Lawrence.
 Fugate, Jessamine Howell; Lawrence.
 Fulton, Marjorie Elizabeth; Topeka.
 Galloway, Georga Helen; Wakeeney.
 Garlich, Richard Walton; *St. Joseph, Mo.*
 Garver, Ruth Jane; Lawrence.
 Garvin, Arthur Eugene; Erie.
 Geiger, Alice Louise; Brookville.
 Geiger, Lucy Marie; Brookville.
 Gentry, Lucile Mary; Lawrence.
 Getter, Hazle Pauline; Lawrence.
 Gill, Walter M.; Lawrence.
 Gilmore, Mabel Jacqueline; Howard.
 Gilyeat, Marjorie; Meade.
 Glasscock, Laird Varner; Parkerville.
 Glendinning, Jennie Blackly; Lawrence.
 Glenn, Ervin Elmer; Sedan.
 Glick, Perry Aaron; *Hamilton, Mo.*
 Gottlieb, Selma; Pleasanton.
 Graeber, Margaret Gladys; Lawrence.
 Gray, James William, jr.; El Dorado.
 Gray, Walter Evans, jr.; Atchison.
 Greider, Ruth Margaret; Topeka.
 Groff, Lola F.; Ellis.
 Gumbiner, Helen Ruth; Lawrence.
 Haas, Cecil Harold; Albert.
 Hale, Dana Jay; Delphos.
 Hall, Charles Ernest, jr.; Hutchinson.
 Hanscome, Anna Jeannette; Kingman.
 Harkrader, Laura; Pratt.
 Harlan, Mae Eleanor; Kansas City.
 Harner, Collis R.; Howard.
 Harrar, Archie Kenneth; Fort Scott.
 Harrel, James Norton; Lawrence.
 Harrington, Harris; Kansas City.
 Harris, Kenneth Calvin; Garrison.
 Harrison, Alvie Brooks; Herington.
 Harrison, Dan Bogue; Downs.
 Hart, Crozier Satterthwaite; *Raton, N. Mex.*
 Hayden, James Richard Edward; *Lexington, Mo.*
 Heath, Gladys Esther; Wakefield.
 Hendren, William Cooper; *Tulsa, Okla.*
 Henry, Harold James; Belleville.
 Henry, Schubert D.; Lawrence.
 Hilkey, Leone Catharine; Lawrence.
 Hill, Lois Opal; Wichita.
 Hindman, Albert Henry; Lawrence.
 Hinke, Winifred; Cimarron.
 Hogue, Helen Schenck; Olathe.
 Holland, Pearl Lorine; *Kansas City, Mo.*
 Holliday, Oliver Morton, jr.; Topeka.
 Holloway, Blanche E.; Lawrence.
 Holmes, Julius C.; Lawrence.
 Hood, Kathryn Agnes; Greenleaf.
 Hood, Romana Elizabeth; Greenleaf.
 Hook, Hugh Lyle; Sabetha.
 Hoover, Vincent Kelvin; Russell.
 Houghton, Emma Florence; Lawrence.
 Hudson, Edward F.; Fredonia.
 Hughes, Emmett Lionel; Lawrence.
 Hughes, LeRoy; Lawrence.
 Humphrey, Anita Josephine; Chanute.
 Husband, Myron Williams; McPherson.
 Husband, Wilfrid Laurier; McPherson.
 Hussey, Theodore Matthew; Topeka.
 Irvine, Arthur Houston; Fort Scott.
 Ismert, Clement Anthony; Kansas City.
 Jamias, Irineo Edralin; *Sarrat, P. I.*
 Jamison, John Henry; Idana.
 Jarvis, Lula Gail; Lawrence.
 Jarvis, Robert Louis; Kansas City.
 Jenkins, Laura; Hunnewell.
 Jenkins, Paul Wesley; *Kansas City, Mo.*
 Jermaine, Charles Allen; Seneca.
 Jewett, John Mark; De Soto.
 Johnson, Delilah Mae; Beloit.
 Johnson, Eva Blanche; Irving.
 Johnson, Richard Melvin; Pittsburg.
 Johnson, Vansel Stanley; Valley Falls.
 Johnson, Willard; Leavenworth.
 Jones, Galia; Florence.
 Jones, Gladys Ann; Pittsburg.
 Jones, Judge Ivison; Kansas City.
 Josephson, Reuben; *Kansas City, Mo.*
 Keckley, Hugh Hanley; Agra.
 Keeler, Walter James; Lawrence.
 Kendall, Louis Sylvester; Lawrence.
 Ketner, Lester Ellsworth; Fort Scott.
 King, Alta Reid; Nickerson.
 Kinkead, Frances Julia; Troy.
 Kliwer, Henry John; Emporia.
 Knapp, Charles Cole; *Kansas City, Mo.*
 Knauss, Lyle McKinley; Garnett.
 Knight, Durell Keeling; Kansas City.

SOPHOMORES—continued.

- Knolcs, James Lyle; Kingman.
 Kollmann, Jack Edward; Lawrence.
 Krehbiel, Jane; Moundridge.
 Krumsick, Victoria B.; Paola.
 Krumsick, Wilhelmina M.; Paola.
 Kuhn, Bernice Anna; Lawrence.
 Lacy, Pearl Hazel; Anthony.
 Landon, James Lawrence; Mayetta.
 Lannen, Effie; *Cheyenne, Wyo.*
 Lauterbach, August William; Colby.
 Learned, Edmund Philip; Lawrence.
 Leffringhouse, Erma Elizabeth; Colby.
 Light, Flora Detha; Winona.
 Little, Harry Buhler; Alta Vista.
 Loflin, Beulah Eddeline; Ellis.
 Logan, Albert Willard; Lebanon.
 Logue, Ida Kent; Lawrence.
 Long, Gladys Marguerite; Greenleaf.
 Loren, Mildred Josephine; Atchison.
 London, Earl Riley; Chapman.
 Lupher, David Warren; Lawrence.
 Luse, Elgie; Easton.
 Lynch, Bryan; Salina.
 Lynn, Nellie; Lawrence.
 Lynn, Robert H.; Lawrence.
 Lytle, Homer Rice; Emporia.
 MacDaniels, Reba Gladys; *Kan. City, Mo.*
 Mackey, Herbert Michael; Frankfort.
 Mackie, Martha; Lawrence.
 Madden, Leo Laurence; Effingham.
 Madden, Molly Wadsworth; Hays.
 Maddox, Albert; Rosedale.
 Malles, Harry; Halstead.
 Malsed, John Arthur; Parsons.
 Manker, Sanford Misner; Salina.
 Marble, Alexander; Troy.
 Maris, Lester Russell; *Ponca City, Okla.*
 Marker, Daniel Isaac; Ozwakie.
 Marsh, Helen Margaret; Norton.
 Marshall, Hal Ellsworth; Elk City.
 Marshall, Velma Adaline; *Kansas City, Mo.*
 Martin, Frank Lehman; Williamsburg.
 Martin, Lila Louise; Topeka.
 Martindale, Jessie Ellen; Lawrence.
 Marxen, Frank Adam; Piper.
 Massey, Addison Richard; Horton.
 Matthews, Margaret Mary; Washington.
 May, Grace Louise; Hutchinson.
 Mayberry, Burt Algernon; Wichita.
 Mayer, Lillian; Lawrence.
 Meath, Lois Anne; Humboldt.
 Meath, Helen Florence; Humboldt.
 Medearis, Donald Norman; Kansas City.
 Meek, Van Efton; Turon.
 Meeker, Bruce Paul; Wichita.
 Meuffels, Herman Dewey; Lawrence.
 Middlekauff, Jack Kenneth; Hays.
 Miller, Mildred; Kansas City.
 Miller, Ruth Mary; Cottonwood Falls.
 Mincer, Lionel Albert; Sterling.
 Moody, Dorothy Belle; Lenexa.
 Moore, Helen Katherine; Galena.
 Moore, Horace Duff; *Kansas City, Mo.*
 Moore, Roy Chester; Hiawatha.
 Moore, Victor Rhodes; Parsons.
 Morrison, Ralph Edwin; Lawrence.
 Mueller, Ralph Edward; Kansas City.
 Murdock, Hilda Fletcher; Morse.
 Murdock, Marguerite Anna; Concordia.
 Murphy, Robert Boyden; Forest Lake.
 Myers, Catherine Mary; *Kansas City, Mo.*
 McBurney, Walter John; Lawrence.
 McCord, Lois Eva; Wichita.
 McCullough, Charles John; Herington.
 McCullough, Russell Lester; Chanute.
 McCurdy, Henry Benson; Lawrence.
 McGhie, Rebecca Corinne; Columbus.
 McGrath, Margaret; Waverly.
 McGuffey, Alice Wyman; Lawrence.
 McLain, Ernest Karl; Wellsville.
 McMahon, Gertrude Elinor; Ellis.
 McMeal, Nora G.; Meade.
 McMurphy, John William; Lawrence.
 McVey, George Washington; Lawrence.
 Neely, Allen Feild; Topeka.
 Nelson, Josephine; Lawrence.
 Nelson, Norval Bryce; Hutchinson.
 Nevitt, Rollin Roy; Mildred.
 Newman, Pauline Emma; Fort Scott.
 Noble, Isabel Tilton; Abilene.
 Nunemaker, Irene; *Brighton, Colo.*
 Oakes, Clarence Perry; Independence.
 O'Brien, Mavis Pauline; Lawrence.
 Orelup, Florence Faye; Lawrence.
 Oswald, Anthony Lewis; Hutchinson.
 Palmer, Harold William; Greeley.
 Patton, Frances; Lawrence.
 Paul, Marion Marshall; Blue Rapids.
 Penney, Alice Rita; Hays.
 Penney, Harriet Enid; Washington.
 Penwell, George Harvey; Larned.
 Perry, Clark William; Belleville.
 Peterson, Russell R.; Lyons.
 Petteys, Iona; Newton.
 Phipps, Frances Elizabeth; Chanute.
 Phipps, Harry Kipling; Chanute.
 Pierce, Willard Brewer; *Kansas City, Mo.*
 Pile, Clare Henrietta; Parsons.
 Poindexter, Mary Lourinda; Kansas City.
 Powers, Chalton Ayers; Topeka.
 Pringle, Roy Dean; Harveyville.
 Puckett, Mabel Mary; Lawrence.
 Puffer, Charles Oliver; Burlington.
 Puffett, Dale Howard; Selma.
 Puls, Pauline Marguerite; Wichita.
 Pumphrey, Lloyd Worth; Pittsburg.
 Putnam, Arlo; Lawrence.
 Putnam, Mark Leander; Lawrence.
 Pyle, Mary Llewellyn; Lawrence.
 Raffety, Charles Edward; Sylvan Grove.
 Rahn, Roine Mildred; Topeka.
 Ramsey, Mary Elna; Independence.
 Ramsey, Ruth Lavinia; Fort Scott.
 Ranson, Dorothy; Wichita.
 Ray, Hartzell Harrison; Marion.
 Reynolds, Ruth; Mankato.
 Read, Maurice Dexter; *Clarence, Iowa.*
 Redding, Robert Harry; Washington.
 Reed, Margaret Lee; Wichita.
 Rees, Howell Thomas; Leoti.
 Regier, Emil; Moundridge.
 Reid, Helen Marie; Morehead.
 Renner, Frances A.; Lawrence.
 Rewerts, Fred Carl; Garden City.
 Rieger, Herbert; Wichita.
 Riley, Wilson Morgan; *Kansas City, Mo.*
 Robb, Mary Gertrude; Clay Center.
 Roberts, Gola Hiram; Fort Scott.
 Robertson, Vina Lynn; *Silver City, N. Mex.*
 Rodgers, Paul Williams; Beloit.
 Rody, George Edward; Downs.
 Rogers, Riley Henry; Lawrence.
 Rollow, Royal Herbert; Russell.
 Rosser, Doris May; Topeka.
 Rudebaugh, Anna Myrle; Denton.
 Rumberger, Helen Armena; Lawrence.
 Runnion, Rutherford Ray; Arcadia.
 Ruppenthal, Lloyd Henry; Russell.
 Russell, Marie; Scott City.
 Sage, Irving; Alma.
 Salvesen, Floyd Wilson; Lawrence.
 Sandefur, Edwin Ashley; Lawrence.
 Sanders, Aileen Isabel; Burlington.
 Sands, Freda Harriette; Robinson.
 Sands, Helen Lillie; Robinson.
 Sartin, Elizabeth Jane; Kansas City.
 Sawyer, Katherine; *Los Angeles, Cal.*
 Schnebly, Joseph George; Pittsburg.
 Schoonover, John Ansel; Lawrence.
 Schultz, Ernestine; Lawrence.

SOPHOMORES—concluded.

Schwinn, Mildred Aldred; Wellington.
 Seeley, Creta Marie; Norton.
 Seery, Irene Cordelia; Topeka.
 Seifert, Elmer William; Murdock.
 Senor, Samuel Earl; *St. Joseph, Mo.*
 Shale, Rachel Barbara; Lawrence.
 Shannon, Winifred; Iola.
 Shellabarger, Julia Curtiss; Salina.
 Sheperd, Tuley Louise; Hutchinson.
 Shepherd, R. Wayner; Buffville.
 Shields, Helen Madalyn; Augusta.
 Shipley, Marion Cline; Neodesha.
 Shore, Edward Harrison; Kansas City.
 Short, Lowell Davis; Assaria.
 Shure, Manual Mordecai; *Kan. City, Mo.*
 Siemers, Edgar Henry; Wakefield.
 Simmons, Hazel May; Kansas City.
 Sinnet, Caryl D.; Cherryvale.
 Skillman, Maude; Burlington.
 Slavens, Lillian Josephine; Hutchinson.
 Smart, Lauretta Martha; Stafford.
 Smith, Henry Dee; Lawrence.
 Smith, Jo Zelma; Lawrence.
 Smith, Mary Lucile; Kansas City.
 Smith, Nellie; Horton.
 Smith, Paul Kenneth; Iola.
 Smith, Thomas Harold; Beloit.
 Soper, Herschel Vern; Hutchinson.
 Sorrell, Vernon Guy; Glen Elder.
 Sparks, Catherine Dorothy; Goodland.
 Sparks, Cecile Marie; Greensburg.
 Stanford, David Evans; Lawrence.
 Stanley, Dorothy Jewell; Lawrence.
 Starr, Carrie Beatrice; Scott City.
 Steininger, Herbert Marvin; *St. Joe, Mo.*
 Stevenson, Helen Louise; Salina.
 Stevenson, William Taylor; Leavenworth.
 Stillwell, Robert Jerry; Lawrence.
 Stockebrand, Ira DeSankey; Yates Center.
 Stout, Forrest Dwight; Medicine Lodge.
 Struble, George Goodell; Glasco.
 Stubbs, Nancy Catherine; *Fort Worth, Tex.*
 Stugard, Erwin; Lawrence.
 Sturgeon, John Martel; Lawrence.
 Sullivan, Mary Mercedes; Fort Scott.
 Summet, Reba Ruth; Paola.
 Sutton, Agnes Whitney; Lawrence.
 Sweeney, Isadora M.; Pittsburg.
 Swenson, Clarence Godfrey; Hiawatha.
 Switser, Lucretia Mae; Wichita.
 Talbert, Vesta; Conway Springs.
 Teichgraeber, Oscar Ferd; Emporia.
 Tenenbaum, Rebecca; Kansas City.
 Terrell, Eppinetta Valeria; Lawrence.
 Testerman, Minnie; Lawrence.
 Thompson, Louise Alcott; Kansas City.
 Thompson, Roy Bertram; Lawrence.
 Thurman, Josephine; *Joplin, Mo.*
 Tibbetts, Harlow Ekins; Blue Rapids.
 Troughton, John Franklin; Seneca.
 Tudor, Ida Patton; Holton.
 Tuttle, Xaina Muriel; Lawrence.
 Udenstock, Helen Oneita; Osage City.
 Underwood, Mary; Lawrence.
 Utermann, Sophia Magdalene; Alma.
 Verner, Hazel Margaret; Independence.
 Vermillion, Carl McLain; Tescott.
 Vincent, Esther Wilma; Overbrook.
 Vincent, Gladys Annette; Overbrook.
 Voelkner, Viola Matilda; Lawrence.
 Waggener, Mark Spurr; Atchison.
 Wagstaff, Richard Hibbard; Lawrence.
 Wanamaker, Elnora Frances; Blue Rapids.
 Waner, Leo William; Florence.
 Ward, Inez Mildred; Sharon Springs.
 Ware, Mearl Devon; *Webb City, Mo.*
 Washburn, Frances Eleanor; Topeka.
 Waterman, Sheldon Ward; Kansas City.
 Waters, Robert James Delant; Bonner Springs.
 Weaver, James B.; Belleville.
 Weaver, Vera Ruth; Maple Hill.
 Webster, Eugene Butler; Kansas City.
 Welch, Marion; Emporia.
 Welty, Otto Reuben; Wichita.
 Wesley, Hubert Reed; Bancroft.
 West, Marion; Lawrence.
 West, Thurlow; Caney.
 Weston, George Frederic; Lawrence.
 White, Helene Josephine; Lawrence.
 Wilhoit, John William; Manhattan.
 Williamson, Elizabeth; Edwardsville.
 Wilson, Gertrude Marie; Lawrence.
 Wilson, Margaret Mary; Meade.
 Windhorst, Dora Mayrella; Belpre.
 Wingert, Phyllis Arthur; Paola.
 Winkler, Hazel; Chanute.
 Winkler, John Joseph; Maple Hill.
 Wood, Dana Dale; *King City, Mo.*
 Wood, Isabel Moore; Lawrence.
 Wren, Hulda Marie; *Kansas City, Mo.*
 Wright, William Elza; Esbon.
 Young, Charles Morton; Lawrence.
 Young, Maurice Reginald; Dodge City.
 Ziesenis, Mrs. Harry Charles; Lawrence.
 Zirkle, Daisy Valerie; Stafford.

SOPHOMORES, 511.

FRESHMEN.

Abrams, Beatrice; Lawrence.
 Adair, Laura Ellen; Lawrence.
 Adams, Roberta Frances; Fort Scott.
 Ainsworth, Alfred; Wichita.
 Alden, Irene; Bonner Springs.
 Alexander, Francis Willard; Kansas City.
 Alexander, Louise Josephine; Lawrence.
 Algie, William Hackney; Clay Center.
 Allen, Dorothe; Kansas City.
 Allison, Ellis J.; Chanute.
 Allison, John Benjamin; McPherson.
 Allvine, Fred; Kansas City.
 Anderson, Hazel Amanda; Lawrence.
 Anderson, William Benton; Lawrence.
 Angle, Fred Ernest; Kansas City.
 Anthony, Georgia; Lawrence.
 Applegate, Paul; Salina.
 Armstrong, Lorrimer Birtie; *Shawnee, Okla.*
 Arthur, Clifford Kerr; Junction City.
 Ashren, Charles Frank; Kansas City.
 Astle, Henry Grant; Haven.
 Ausherman, Harold Proctor; Iola.
 Austin, Lindsey Willis; Valley Center.
 Babb, Vera Lenor; Lawrence.
 Back, Carrie Anna; Ellinwood.
 Bacot, Eunice; *Kansas City, Mo.*
 Bader, Anna Margaret; Lansing.
 Bailey, Frank Wayne; Waverly.
 Baird, Dorothy Mildred; Agenda.
 Baker, Aubrais Jerome; Leavenworth.
 Baker, Crawford James; Kansas City.
 Baldwin, Frank Lawrence; *St. Joseph, Mo.*
 Ball, Carl Melvin; White City.
 Banks, Alfred William; Kansas City.
 Barley, John Jerome; Washington.
 Barnes, Harold Rueben; Hiawatha.
 Barney, Nellie Mabel; Seneca.
 Barnhart, Clarence Lewis; Hutchinson.
 Bartholomew, James Jay; Kansas City.
 Bates, James Charles; Basehor.
 Bates, Kenneth Stanford; *Excelsior Spgs., Mo.*
 Baumgartner, Leona; Lawrence.
 Beardsley, Marian Elizabeth; Russell.
 Beatty, Thomas Allen; Ellsworth.

FRESHMEN—continued.

- Beck, Alvah Virgil; Osawatomie.
 Redell, Gaylord Henry; *Kansas City, Mo.*
 Feery, Dolson Logan; Lawrence.
 Beezley, William Newton; Kinsley.
 Benfer, Merrill Meridith; Leona.
 Bennett, Catherine; Ottawa.
 Bennett, Lois Elza; *Kansas City, Mo.*
 Bierer, Alfaretta Louise; Hiawatha.
 Blair, Bernice Garnett; *Belton, Mo.*
 Blair, Hugh Macdonald; Lawrence.
 Blakey, Margaret Susanna; Pleasanton.
 Blew, Clarence Lloyd; Kansas City.
 Bloom, Glenn Tonker; Medicine Lodge.
 Bloomer, Joseph Benedict; Clafin.
 Blymn, Ralph George; Fredonia.
 Bobrecker, Gladys; *Kansas City, Mo.*
 Bohl, Manuel; Kinsley.
 Bollinger, Gwendolyn Mae; Minneola.
 Bonney, Joseph Byron; *Kansas City, Mo.*
 Bontz, Antoine Nickle; Wichita.
 Boone, Fred Sawtelle; Manhattan.
 Boone, John Henry Hall; Hutchinson.
 Bosworth, Charles Granville; Wellsville.
 Bosworth, Florence Evelyn; Wellsville.
 Botkin, William Martin; Kiowa.
 Bouska, Luther Nathaniel; Narka.
 Rowen, Philip C.; Cherryvale.
 Boyd, Fray McCabe; Denison.
 Boyer, Samuel Annon; Osborne.
 Boylan, Orville Elmore; Republic.
 Boyle, Lloyd William; Benton.
 Boyle, Walter Jacob; Bennington.
 Bozell, Eula Lee; Beloit.
 Bracken, George Lee; *Kingfisher, Okla.*
 Brandle, Dorothy Minnie; Chanute.
 Branford, Leo Harold; Clay Center.
 Brazil, William Ham; Eudora.
 Bray, Oliver Wren; Chanute.
 Bredberg, Elliott Louis; Clay Center.
 Brennan, Walter Earl; Maple Hill.
 Brice, Mildred; Cimarron.
 Brichacek, Josephine Somer; Black Wolf.
 Brigham, Ralph Theodore; *Kansas City, Mo.*
 Bronson, Elsie Marie; Mound City.
 Brown, Adelbert Charlton; Halstead.
 Brown, Esther; Lawrence.
 Brown, Francis William; Geneseo.
 Brown, Grace Lula; Oskaloosa.
 Brown, Guy Bowen; Kansas City.
 Brown, Lynn H.; Lawrence.
 Brown, Neil Dowell; Hill City.
 Brown, Neva Anna; Minneapolis.
 Brown, Virgil T.; Hill City.
 Brown, Williamson James; *Kansas City, Mo.*
 Bruer, John Marion; McPherson.
 Bryant, Harry Victor; Frankfort.
 Bucher, Barney; Coffeyville.
 Buckle, Ethel Fae; Stafford.
 Buckles, George D.; Atchison.
 Budinger, Francis Joseph; Wichita.
 Buenning, Arvel Edward; Minneapolis.
 Buikstra, Cyrus Renzo; Ionia.
 Bullock, Arthur Merlin; *Kansas City, Mo.*
 Bundy, Kenneth Orville; Independence.
 Bunn, Helen Louise; Lawrence.
 Burke, Arnold John; Danville.
 Burke, Paulen Elmore; Fredonia.
 Burnett, Cleo; Lawrence.
 Burnett, McKinley Langford; Oskaloosa.
 Burns, Robert Lee; Wichita.
 Burnside, Clyde Ostin; Iola.
 Burruss, Florence Elizabeth; *Joplin, Mo.*
 Burtis, Maxine; Garden City.
 Bush, Pauline Douglass; Osawatomie.
 Butler, Louie Walter; Winona.
 Butler, Lyla Hathaway; *Miami, Okla.*
 Byington, Donald Glenn; Wichita.
 Cain, Lorraine; Wichita.
 Callahan, John Dewey; Burr Oak.
 Callahan, Mabel Estelle; Lawrence.
 Cameron, Bert L.; Manhattan.
 Campbell, Catharine; Lakin.
 Campbell, Emerson Lowell; Lawrence.
 Campbell, Harriet Marie; Lawrence.
 Carey, Nellie Alemeda; Hutchinson.
 Carney, Alice Burton; Concordia.
 Carpenter, Harry Elwood; Mont Ida.
 Carpenter, Louis Sylvane; *Bartlesville, Okla.*
 Carpenter, Ora McKinley; Westphalia.
 Carr, Maude; Osawatomie.
 Carrico, Felix Martin; Beloit.
 Carter, Leslie Homer; *Milwaukee, Wis.*
 Case, Rufus McKinley; Lyons.
 Case, Philip Hardin; Iola.
 Casto, James Frederick; Wellsville.
 Caulk, Raymond Frederic; Bonner Springs.
 Cavanagh, Charles Leo; Perry.
 Cavanaugh, George Edgar; Beloit.
 Chalkley, Marcella Howland; Lawrence.
 Chandler, Collis Paul; *Vinita, Okla.*
 Chandler, William Paul; Lawrence.
 Chapin, Dean William; Belleville.
 Chappuis, Twilla Louise; Belleville.
 Chase, Mary Eleanor; Lawrence.
 Christine, Lorna Evelyn; Lawrence.
 Christman, Mary Christina; Topeka.
 Chubb, Worth Leland; Baxter Springs.
 Clark, Adeline Beatrice; Garden City.
 Clark, Carroll DeWitt; Minneapolis.
 Clark, Eugene Chapin; Minneapolis.
 Clark, John Baptist; Lawrence.
 Clarke, Margaret Mary; Osawatomie.
 Claudell, Leo Francis; Claudell.
 Clough, Arthur Merrett; Lawrence.
 Clouse, Homer Carl; Cunningham.
 Clouse, Ruth Velma; Cunningham.
 Clouser, Mary Frances; *Kansas City, Mo.*
 Clover, Fay Walter; Chanute.
 Cobb, David Glenn; Fort Scott.
 Cohn, Marcel Donald; Lawrence.
 Cole, Floyd Francis; Ellis.
 Collins, Byron Taylor; Seneca.
 Collins, Herbert Dale; Pittsburg.
 Collins, Marion Francis; Osawatomie.
 Comer, Burt; Cullison.
 Conatser, Irene June; Lawrence.
 Conn, Emily; *Kansas City, Mo.*
 Constant, Corinne; Lawrence.
 Constant, Kenneth Hoskins; Lawrence.
 Cook, Clara Bernice; Lawrence.
 Cooper, Francis Etherington;
Las Animas, Colo.
 Coors, Lawrence C.; *East Las Vegas, N. Mex.*
 Copas, Paul George; Denison.
 Corcoran, William Joseph; Solomon.
 Correll, Ralph Follett; Chanute.
 Coutts, Warren Hale; El Dorado.
 Cox, John Deverix, jr.; Parsons.
 Cox, Oris Claude; Elk City.
 Crandall, Mary Isabel; Vernon.
 Crawford, Lucy Christina; Atchison.
 Crawford, Raymond R.; Paola.
 Cretcher, Kathryn Gladys; Scott City.
 Croft, Gladys Marie; Lawrence.
 Cronin, Anne Bertha; Halls Summit.
 Cross, Austa Louise; Quenemo.
 Crow, Charles William; *Kansas City, Mo.*
 Crowder, Rowena Mary; Lawrence.
 Cummings, Milton Curtis; Effingham.
 Cutter, Charlotte; Lawrence.
 Daily, Elizabeth Juliana; Scottsville.
 Darby, Helen; Washington.
 Darby, Phil Nathan; Garden City.
 Darnall, Burton Gardner; Kansas City.
 Daugherty, Dana Mae; Lawrence.
 Daugherty, Paul; Lawrence.

FRESHMEN—continued.

- Davidson, Alan John; Mankato.
Davidson, Oscar Wilford; Solomon.
Davis, Ruth Ellen; *Nowata, Okla.*
Day, Lawrence Franklin; Onaga.
Day, Leland; Greensburg.
Dayhoff, Helen Mossman; Lawrence.
Deden, Henry Albert; *Fort Smith, Ark.*
Dederick, Theodore Clair; Abilene.
Degan, Constance Marie; Hutchinson.
Delaney, Roy L.; Waterville.
Dengel, Charles Walter; Kansas City.
Dennison, Louise; *Brockton, Mass.*
Derby, Grace Rosalie; Lawrence.
DeWatteville, Roland Albert; Lawrence.
Dewell, Arthur Glen; Stark.
Diltz, Ronald Sartin; Kansas City.
Dixon, Charles; Hiawatha.
Dodds, Richard Parks; *Kansas City, Mo.*
Dougherty, Jewell Edith; *Muskogee, Okla.*
Doyle, Roscoe Miller; Lawrence.
Dresslar, Linnie; Mankato.
Dryden, Donovan Mitchell; Parsons.
Duff, Leona Maude; Horton.
Dumas, Harry; Lawrence.
Dunigan, Elmer George; Lawrence.
Dunkel, Elizabeth Goodman; Lawrence.
Dunkelberg, Kent Walter; *Nardin, Okla.*
Dunton, Clair H.; Arcadia.
Durrell, Harold; Kansas City.
Dutton, Lane Allen; Erie.
Dworkovitz, Joseph Harold; *Kansas City, Mo.*
Dwyer, Maurice Howard; Kansas City.
Dyche, George Oxtell; Lawrence.
Dye, James Edwin; Parsons.
Eagle, Agnes Raenette; Kansas City.
Eaton, Vaughan; Almena.
Eckelberry, Orren Sumner; La Harpe.
Eddington, Mary Belle; Topeka.
Edwards, Ira Paul; Neodesha.
Edwards, Jessie Winnifred; Sterling.
Eggleston, Hiram Ernest; McLouth.
Elliott, Ural Berry; Garnett.
Embrey, Virginia Constance; Lawrence.
Emmert, Madeline Lee; *Kansas City, Mo.*
Endacott, Herning; Lawrence.
Endacott, John Earl; Lawrence.
Endacott, Paul Sidney; Lawrence.
Engel, William James; Lawrence.
Ensminger, Dorothy Moore; *Kansas City, Mo.*
Ernst, Edith Etta; Lawrence.
Esterly, George Roberts; Lawrence.
Evans, Leo; Kansas City.
Ewing, Mary Elizabeth; Olathe.
Eyer, Helen Frances; *Kansas City, Mo.*
Faris, Harry; Hutchinson.
Fearing, Albert Harold; Burr Oak.
Fearing, Ellen Pearles; Burr Oak.
Fergus, Cecil Coila F.; Kimman.
Ferguson, Raymond Wheeler; Topeka.
Fink, Janet Evangeline; Topeka.
Fischer, Loran R. O.; Wamego.
Fisher, Roy Edward; *Kansas City, Mo.*
Fisk, Leonard Elon; Junction City.
Fitzer, Howard Dean; Lawrence.
Fleck, Arthur L.; Kansas City.
Fleming, Irene Elizabeth; Lawrence.
Fletcher, John Bert; Burlington.
Flower, Rupert Emil; Wellington.
Flynn, Pauline; Humboldt.
Focht, Marcus Robert; Eureka.
Folladori, Junior; Leavenworth.
Ford, Margaret; Lawrence.
Ford, William Virgil; Lawrence.
Forrester, Herschel George; Moline.
Foster, Mildred; *Blackwell, Okla.*
Fox, Jared Copeland; Atchison.
Fraker, Ray Dayton; Garnett.
Francisco, Ethel May; *Enid, Okla.*
Frater, Marjory; Fredonia.
Frazier, Glenn Chester; Athol.
Freeland, John Elder; Marion.
Freeman, William Glenn; Collinsville.
Fricke, Burton Eugene; *Kansas City, Mo.*
Fridell, Daisy Frances; Robinson.
Fritzlen, Christine; Wichita.
Gage, George Maurice; Minneapolis.
Gagliardo, Domenico Augusto; Cherokee.
Gants, Isaac Estle; Melvern.
Gard, Catherine Louise; Iola.
Gard, Lucille Margaret; Iola.
Garrett, Helen Vivian; Lawrence.
Garvin, Evart Campbell; St. John.
Garvin, Roy Clayton; Kansas City.
Gaston, Dewey George; Erie.
Gates, Arthur Ralph; Seward.
Gates, Clara Rose; Seward.
Gaumer, Olive; Lawrence.
Gaunt, Marjorie; Alton.
Gerety, John Henry; Wichita.
Gernon, John Lawrence; Hiawatha.
Gilbert, Sarah Lucile; Lawrence.
Gillespie, James Harry; Anthony.
Gillett, David Clayton; Burr Oak.
Gillett, Henrietta Maude; Burr Oak.
Giwosky, Esther Marguerite; Wichita.
Glanville, Joe Charles; Kansas City.
Glass, Wilber Earl; Parker.
Glover, Charles Otho; Lawrence.
Godlove, Elsie Maud; Lawrence.
Godlove, Perry Calvin; Lawrence.
Good, Forrest Allen; Hardtner.
Goodell, James Adolphus; Kansas City.
Goodman, Jonathan Norwood; Pomona.
Goodman, LeRoy; *Kansas City, Mo.*
Goodner, Kenneth Howard; Baxter Springs.
Gorsuch, Ralph Amer; Waverly.
Gossard, Edgar Harrison; Oswego.
Goto, Shinzaburo J.; Japan.
Graeber, Bernice; Lawrence.
Graham, William R.; *Nowata, Okla.*
Grant, William Andrew; Attica.
Graves, Myrtle M.; Atwood.
Greason, Glenn G.; Atwood.
Greeley, Leonard James; Leavenworth.
Green, Mary Elizabeth; Kiowa.
Green, Victor Hubert; Mankato.
Gregory, McKinley Dean; Alton.
Griesa, James Murray; Lawrence.
Griesinger, Andrew Leroy; Anthony.
Grimes, Floyd Joseph; Louisburg.
Grimes, James Lewis; Ashland.
Grimes, Martin Ball; Hutchinson.
Grove, James Morris; Larned.
Grubb, Clarence Frederick; Gridley.
Grubb, Orval Grant; *Lamont, Okla.*
Gwinn, Robert Alfred; Anthony.
Hackenberg, Robert Alexandra; Downs.
Hackney, William Dorman; La Harpe.
Halbower, Harry Gerbert; Anthony.
Hale, Cecile S.; Lawrence.
Hale, Travis Burney; Lawrence.
Hall, Virgil Wesley; Douglass.
Hamlin, Madge; Kansas City.
Hampton, Lois Andrews; Colby.
Harding, Orpha Belle; Lawrence.
Hare, Robert Stuart; Enterprise.
Harkins, Vironica Leontine; Paola.
Harlan, Bedford Brooke; *Fort Smith, Ark.*
Harms, Herman Roland; Haven.
Harner, Olin Wade; Howard.
Harper, Dallas LeRoy; Esbon.
Harrington, Ralph Grant; Kansas City.
Harris, Margaret Estelle; Burr Oak.
Harris, Mervin Samuel; Kansas City.
Harris, Ray Edwin; Hill City.
Harshman, Karl Clair; Elmo.

FRESHMEN—continued

- Hart, Bernice; Herington.
Hart, Georgia Myrl; Macksville.
Hart, Mary Ava; New Ulisses.
Hart, Mildred Louise; Kansas City.
Hartwell, Harry Irving; Wichita.
Hasty, Jessie; Fredonia.
Hathmon, Grace Josephine; Wichita.
Hawk, Grant Murray; Lawrence.
Hayes, Ashton Smith; Iola.
Heath, Charles Flaunery; Tescott.
Heckard, Pauline Donez; Wichita.
Helmer, Lydia Anna; Fort Scott.
Hem, Norman; Kansas City.
Hemenway, Keith Austin; Junction City.
Henderson, Lee Marie; Solomon.
Henry, Dorothy; Tonganoxie.
Henry, Laura Vernon; Lecompton.
Henry, Nellie Gladys; Bonner Springs.
Henry, Princess Juanita; Lecompton.
Henze, Raymond Philip; *Kansas City, Mo.*
Herrick, Don Henry; Lawrence.
Herzog, Walter Max; Fort Riley.
Hesse, Charles Gerald; Lawrence.
Heusner, William Wilder; Salina.
Hewett, Amos Woody; Hiattville.
Hibbard, Genevieve Dixon; Cherryvale.
Hibbs, Ben; Pretty Prairie.
Hickok, Garold Lichty; *Kansas City, Mo.*
Hicks, Leta Nell; Norton.
Hicks, Virginia Elmina; Lakin.
Higgins, Severt Edward; Lawrence.
Hill, Bertha Louise; Lawrence.
Hill, Frank Goddard; Great Bend.
Hinch, Gertrude Kathryn; Kansas City.
Hirsch, Johanna Louise; Ellinwood.
Hitchcock, Everett Edward; Augusta.
Hoaglin, Fred Shetler; St. John.
Hogin, James Humphrey; Belleville.
Hogin, John Christfield; Belleville.
Hohner, Carl David; St. John.
Holiday, Celia Pauline; Lawrence.
Holland, Ruby Maxine; *Kansas City, Mo.*
Hollie, Harrison Walker; Wichita.
Hollinger, Dorothy May; Chapman.
Hoover, Max Manley; Burlingame.
Horning, Anna Florence; Topeka.
Horning, Hubert; Moline.
Howard, Fred Donald; Lawrence.
Howell, Earl James; Morganville.
Huddleston, Nicholas Thomas; Danville.
Hudson, Mina Mae; Ashland.
Hughes, Margaret Ann; Leavenworth.
Hughes, Mildred May; Lawrence.
Hume Harold Clay; Humboldt.
Ingham, Oba Glenn; Eshon.
Ireland, Eva May; Florence.
Irwin, Nadine Lillian; Anthony.
Isaacs, Lloyd L.; *Prairie View, Tex.*
Isern, Milton Alvin; Ellinwood.
Jackman, Katherine; Lawrence.
Jackson, Edward Valentine; Atchison.
Jackson, Vera Gertrude; Kansas City.
Jacobs, Ida Johnston; Winfield.
Jameson, Elsie Dean; Abilene.
Janeway, Earl Forest; Lawrence.
Jarvis, Claire Emily; Kansas City.
Jefferson, Leo; Nessesha.
Jenkinson, Mary Edington; Troy.
Jennings, Frank Sherman; Winfield.
Jewell, Edna Fern; Lawrence.
John, Clarence William; Lawrence.
John, Leslie; *Tulsa, Okla.*
Johns, Frank Joseph; Moline.
Johns, Perry Bryan; Concordia.
Johns, Vernon O.; *Deer Creek, Okla.*
Johnston, Clifford Louis; *Kansas City, Mo.*
Johnston, George Eldorado; Peru.
Johnston, Ralph Eugene; Haven.
Jones, Ora Lee; Lawrence.
Jones, Selden Martin; *Kansas City, Mo.*
Jordan, Herbert Wilson; Seneca.
Joseph, Paul Frederick; Summerfield.
Jurado, Pedro Farinas; *Maysingol, P. I.*
Kagi, Vivian Ethel; Lawrence.
Kaufman, Josephine; Rosedale.
Keeton, Earl Wesley; Mildred.
Kellett, Julian Cleland; *Seneca, Mo.*
Kelley, Hubert Williams; Lawrence.
Kelsey, Claude Gerhardt; *Kansas City, Mo.*
Kemper, Elmer Theodore; Bushton.
Kendall, Marguerite Blanche; Lawrence.
Kendall, Paul S.; Great Bend.
Kiefer, Grace Evelyn; Lawrence.
Kimmel, Donald Theodore; Clearwater.
Kimmel, Murl; Robinson.
Kirchner, Olive Viola; Clay Center.
Kirker, William Earl; Uniontown.
Kliwer, Otto; Newton.
Knapp, Leslie Eugene; Arkansas City.
Knoblauch, Romayne John; Wichita.
Knoles, Velma Bradley; Kingman.
Knox, Faye Lorraine; Kansas City.
Kohler, Bion; *Kansas City, Mo.*
Konschak, Mae Emma; Lawrence.
Kramer, August Elvin; Hugoton.
Krisan, Velma May; Haddam.
Krisel, George; Osage City.
Kunze, Alice Ruth; Winkler.
Kurfs, Alexander Wilson; *Kansas City, Mo.*
Kuttler, Virginia Bel; Lawrence.
Labadie, Edward M.; Groveland.
Lacy, Opal Maude; Anthony.
Laizure, Martha Mavis Rosalie; Lawrence.
Lamb, George William; Piper.
Lamb, Joseph Byron; *Okmulgee, Okla.*
Lamb, Paul Alson; Yates Center.
Lanning, Stephen Alexander; *Artesia, N. M.*
Larkin, Archie Merrill; Phillipsburg.
Larkin, Margaret; *East Las Vegas, N. M.*
Larson, Minnell O.; Sharon Springs.
LaRue, Ola Goodwin; Woodston.
Lavery, Euthalia Ann; *Kansas City, Mo.*
Lawellin, Marion Maxwell; Garnett.
Lee, Florence Gertrude; Lecompton.
Lee, Ouida Sophia; Lawrence.
Lee, Rebecca Josephine; Bonner Springs.
Leffler, George Leland; Lyndon.
Lehman, Roy Philip; Halstead.
Leibengood, Dana; Paola.
Leimenstoll, John Robert; Humboldt.
Leitch, Cecil George; Parkerville.
Lemon, Robert Sheldon; Pittsburg.
Lennen, Ruth Josephine; Soldier.
Lewis, Freda Alberta; Kansas City.
Lichty, Warren Dewey; Morrill.
Liggett, John Riley; Lawrence.
Limb, Earl Raymond; Seamon.
Lindstrom, Florence Pauline; Coldwater.
Lingo, Cassius Luther; Wilson.
Lockett, Helen Etienne; *Albany, Ga.*
Long, Cecil Elma; Moline.
Luke, John Henry; Junction City.
Lutz, Madge Mary; *Kansas City, Mo.*
Lyons, James Franklin; Lawrence.
Lyons, William Francis; Lawrence.
Macdonald, Marion Lucille; *Kansas City, Mo.*
Mackey, Leo Jerome; Frankfort.
Mackie, David Charles; Lawrence.
Maher, Richard Dewey; Gordon.
Mahin, Hilory Dennison; Smith Center.
Malts, Mary Lucille; Salina.
Manter, Ruby Helen; Lawrence.
Manwarring, Dorothy Gladys; Concordia.
Marshall, Thomas Ralph; Coffeyville.
Martin, Murray Edward; Linwood.
Martin, Velma; Bucyrus.

FRESHMEN—continued

- Masemore, Frank Nelson; Coldwater.
 Mason, Herbert Owen; Nickerson.
 Mason, Willful Ganelle; Kansas City.
 Maxey, Benjamin Thomas; White Water.
 Maxfield, George Glen; Syracuse.
 Maxwell, Mildred Alryma; Lawrence.
 Meidinger, Bernard Roy; Wathena.
 Meinke, Herbert Clyde; Linwood.
 Mellott, Lennert Boyd; Munsie.
 Mendenhall, Clarence James; La Cygne.
 Mendenhall, Sam A.; Kansas City.
 Merritt, Grace Ardene; Haven.
 Mickel, Bernice; Soldier.
 Mickel, Chester G.; Soldier.
 Miles, Gladys Harriet; *Shawnee, Okla.*
 Miles, Margaret Ann; Lawrence.
 Millar, John Edward; *Kansas City, Mo.*
 Miller, Frona M.; Eureka.
 Miller, Helen Irene; Paola.
 Miller, Jacob R.; Lincoln Center.
 Miller, Joseph Clarence; Salina.
 Miller, Kenneth Carter; Wathena.
 Miller, Lewis Lapham; Independence.
 Miller, Margaret Lenore; Garden City.
 Millikin, Fred Graham; Lawrence.
 Milton, Mary Kathryn; Elk City.
 Milton, William Arthur; Stafford.
 Miner, Glenn Ernest; Sabetha.
 Minich, Charles Russell; Bronson.
 Mitchell, Henrietta Gladys; Galena.
 Mitchell, Ralph Jacob; Cawker City.
 Moberly, Hobart Amory; Olathe.
 Montgomery, Edwin George; Junction City.
 Montgomery, Marion; Junction City.
 Moore, Benjamin James; *Kansas City, Mo.*
 Moore, Mary Nestor; Wichita.
 Moore, Winifred Ethelyn; Galena.
 Morgan, Granville William; Kansas City.
 Morris, Benjamin Smith; Hill City.
 Morrison, Nora Nadine; Lawrence.
 Morrison, Walter Leo; Lawrence.
 Morrow, Harry Eugene; Blue Mound.
 Morrow, Vernon Paul; Liberal.
 Morton, Francis Arthur; Kansas City.
 Morton, Vesta Chase; Wichita.
 Mosse, Justine St. Leger; Leavenworth.
 Mounts, Rohale Samuel; Wichita.
 Moyer, Earl Ezra; Iola.
 Munden, John Elza; Iola.
 Murray, Virginia; Herington.
 Muse, Victor O.; Hutchinson.
 Myers, Francis Colville; Lawrence.
 Myers, John E.; Lawrence.
 McAdams, Carl Armstrong; Independence.
 McAdams, Vauneta Evelyn; *St. Joseph, Mo.*
 McBride, Ella; Onaga.
 McCall, Bannon Grant; Hiawatha.
 McCollum, Marion Alpha; Lawrence.
 McDonald, Andrew; Lawrence.
 McDowell, Kathryn; Pratt.
 McElroy, Etha Aveline; *Kansas City, Mo.*
 McGrew, John Merritt; Holton.
 McGrew, Nathan White; Holton.
 McHale, Cecil; Kansas City.
 McHenry, Lois Hurd; Grantville.
 McIntyre, Francis Gleason; Coldwater.
 McKee, Gordon Edward; Lawrence.
 McKee, Herschel Sommerville; Lathrop.
 McKenzie, Joseph Leonidas; Arkansas City.
 McKibbin, Mabelle Catherine; Lawrence.
 McLaughlin, Raoul Inri; Toronto.
 McLean, Marie Margaret; Salina.
 McLelland, Charles Howard; Strong.
 McMullen, Robert H.; Great Bend.
 McNalley, Leo Arthur; Michigan Valley.
 McNutt, Walter Lowry; *Kansas City, Mo.*
 McPherson, Ila; Lawrence.
 Naismith, John Edwin; Lawrence.
 Neale, Mildred Ethelyn; Coffeyville.
 Neely, Helen Augusta; Lawrence.
 Neighbors, Helen; Hutchinson.
 Nelson, Elizabeth Irene; Leavenworth.
 Nelson, Morton Edward; Lawrence.
 Neuer, Carl Chester; Clay Center.
 Newkirk, William Thomas; Elk City.
 Newman, Victor Albert; Topeka.
 Nichol, Albert Rose; La Crosse.
 Nims, Arthur Lee; *Oklahoma City, Okla.*
 Noah, Ruth Delmens; Beloit.
 Nolasco, Saturnino Morales; Lawrence.
 Nonken, Edith Berenice; Burns.
 Norris, Dwight Willard; Burlington.
 Nowlin, Ethel Frances; Lawrence.
 Oates, Anthony; Minneapolis.
 O'Brien, Harry Normile; Leavenworth.
 O'Connor, Cornelius Craven; Leavenworth.
 O'Donnell, George Edward; Leavenworth.
 O'Donnell, Harold Frederick; Ellsworth.
 Officer, Frances Emeline; Paxico.
 Old, John Ballard; Parsons.
 O'Leary, Paul Martin; Lawrence.
 Oliver, Archibald Beatty; Lawrence.
 Olsen, Karl Benjamin; Baker.
 Olson, Harry Emmett; Kansas City.
 O'Meara, Mildred Elizabeth; Lawrence.
 Osborne, Philip; Wichita.
 Ott, Alberta Elizabeth; Olathe.
 Ott, Geraldine Louise; Pittsburg.
 Paepke, Paul; *Savannah, Mo.*
 Palmer, Helen Leone; Concordia.
 Parham, Iva Reame; Lawrence.
 Parish, Havner Hurd; Lawrence.
 Park, Albert Lawrence; White Cloud.
 Park, Anne Osborne; Atchison.
 Parkhurst, John Lewis; La Harpe.
 Parks, Percy Homer; Cedar Vale.
 Parrott, Ivo William; Osborne.
 Parsons, Charles Richard; *Kansas City, Mo.*
 Pate, Vernon; Esbon.
 Patterson, Lester Sproull; Lawrence.
 Patterson, Margaret; Fredonia.
 Patterson, Paul Bryan; Lawrence.
 Paul, Elmer William; *Harvard, Ill.*
 Payne, Willard Eugene; Lawrence.
 Peacock, Della Bernice; Blue Rapids.
 Pearson, Charlotte Marie; Simpson.
 Pendleton, Raymond Edward; Princeton.
 Penney, Gerald Harvey; Hays.
 Pennington, William Verne; Lebanon.
 Pester, Benjamin H.; Hillsboro.
 Fetherbridge, Opal Maire; Basehor.
 Pettit, Geraldine Prudence; Neodesha.
 Phillips, Dan Eugene; Hutchinson.
 Phillips, Myra Louise; Lawrence.
 Pierce, Frances Ellen; Junction City.
 Pierson, Ray Samuel; Burlington.
 Pile, Holland Clyde; Parsons.
 Pinkard, Wilbur James; Kansas City.
 Pinkston, Reid Anderson; Independence.
 Pipes, Gerald Edgar; Lawrence.
 Pommerenke, Wesley Theodore; Woodbine.
 Potter, Paul Burdette; Herington.
 Powell, Orville Raymond; Denton.
 Pringle, Annabel; Alma.
 Proctor, Virgil Dale; Norton.
 Puffer, Virginia Mae; Burlington.
 Pugh, Pearl Elizabeth; *Kansas City, Mo.*
 Pyles, Alfred Edward; Atchison.
 Quevedo, Eugenio Ver; *Dingras, Ilcos Norte.*
 Quinlan, Beulah Alma; Linwood.
 Kaddcliffe, Charles Ober; Lawrence.
 Raich, John Alfred; Hutchinson.
 Ramey, Roy Lee; Lawrence.
 Ramseyer, Grace Leah; Blair.
 Randall, Max Willard; *Novata, Okla.*
 Ratliff, Mable Faye; Burr Oak.

FRESHMEN—continued.

- Rea, Ives Ulrich; Glasco.
 Read, Norris Edwin; *Clarence, Iowa*.
 Reb, James Henry; Blue Rapids.
 Reed, Ada Bernice; Sabetha.
 Rees, Decatur King; Solomon.
 Rees, Mona Ellenora; Greeley.
 Reeves, Blanche Vernice; Lawrence.
 Reid, Bernice Lenore; Morehead.
 Reilly, Margaret; Leavenworth.
 Reilly, William Daniel; Lawrence.
 Reinsch, Elta May; *Martin City, Mo.*
 Reitzel, Delia Josephine; Waterville.
 Renz, Josephine; Leavenworth.
 Reynolds, Adrian Wall; *Eagle, Colo.*
 Richards, Samuel Arch; Jewell.
 Richardson, George Melvin; Lawrence.
 Richmond, Lloyd; Kansas City.
 Ricker, Mae; *Maitland, Mo.*
 Ricker, Samuel Foster; Emporia.
 Rigdon, Jonathan Milton; Lawrence.
 Riley, Omer Carl; *Lamont, Okla.*
 Riley, Ruth; Kansas City.
 Risinger, Lelia Mary; Haddam.
 Roach, William Laray; Mulberry.
 Roark, Frank Leslie; Manhattan.
 Roberts, Louis Elwood; Englewood.
 Robertson, Rhea Eleanor; Topeka.
 Robinson, Lois Leilla; Harper.
 Robinson, Lois Moreen; Sabetha.
 Robinson, Martha Kathryn;
Independence, Mo.
 Robinson, Mary Bernadette; Potter.
 Robison, Willard; Carbondale.
 Rodenburg, Reynold Eugene; Leavenworth.
 Rodgers, Lewis Fremont; Kansas City.
 Rogers, Geraldine Ruth; Olathe.
 Rogers, Sumner Saule; Lawrence.
 Romig, Phoebe Ruth; Topeka.
 Root, Ellsworth Eugene; Council Grove.
 Rorabaugh, Clarence Herschel; Wichita.
 Rose, Alec; Lincoln.
 Rose, Dacia Virginia; *Carthage, Mo.*
 Rose, John Everett; Parsons.
 Ross, Louisa Perry; *St. Joseph, Mo.*
 Ross, Hildred Manerva; Dover.
 Ross, Warren L.; St. John.
 Royer, George Daniel; Gove.
 Rover, Horace Haldene; Wichita.
 Ruble, Madge; Elk City.
 Rundus, Philip Peter; Topeka.
 Rupps, Adolph Fred; Halstead.
 Rustenbach, Maude; Fredonia.
 Rutherford, James Gill; Wellington.
 Ryan, Max; Leavenworth.
 Sarchet, Rebecca; *Ponca City, Okla.*
 Saunders, Ruth; *Kansas City, Mo.*
 Saunders, Vera Juanita; Pleasanton.
 Scales, William McVey; Hutchinson.
 Scanland, Granville Elmer; Randall.
 Schomerus, Douglas Harry; Iola.
 Schroeder, Helen Frances; Kiowa.
 Schroer, Eleanor Henriette; Winkler.
 Schultz, Willis Glick; Lawrence.
 Schumann, Anna M.; Hiawatha.
 Schupp, Claud Irving; Garnett.
 Schwinn, Virginia Chesney; Wellington.
 Scofield, Hiram Ferris; *Kansas City, Mo.*
 Scott, Carroll Henry; Solomon.
 Scott, James Lingard; Ottawa.
 Seidel, Erna Marie; Lawrence.
 Setchell, Fred M.; Morland.
 Shanahan, Charles Edward; Stilwell.
 Shaner, Virginia; *Tulsa, Okla.*
 Shaw, Irma Catherine; Holton.
 Shaw, Minnie; Kansas City.
 Shawhan, John Henry; *Lees Summit, Mo.*
 Sheets, Harry Wilton; Lawrence.
 Sheffer, Orville Andre; Sharon Springs.
 Shefflet, Clyde Treffz; Atchison.
 Shefrey, David Lloyd; Wichita.
 Sheldon, Gene; El Dorado.
 Shepherd, Mary Elizabeth; Waverly.
 Shiras, Margaret; Ottawa.
 Shirley, Juvernia Joy; Lucas.
 Shumard, Mark McCormick; Cherryvale.
 Sifers, Samuel Iba; Iola.
 Simmons, Catharine; Hutchinson.
 Simon, Edith; Kansas City.
 Sisson, Charles Alexander; Lawrence.
 Skinner, Cleo Marie; Coffeyville.
 Slane, Nimon Allen; Parsons.
 Smith, Hazel Marguerite; Lawrence.
 Smith, Lena Ellen; Kingsdown.
 Smith, Lester Harold; Lawrence.
 Smith, Loree Donald; Wilmot.
 Smith, Marjorie Marley; Iola.
 Smith, Matt Ryan; Carbondale.
 Smith, Oden W.; Garnett.
 Smith, Riley; Kansas City.
 Smith, Robert Monroe; *Kansas City, Mo.*
 Smith, Swannie Estelle; Baxter Springs.
 Smith, Wendell Ellis; Lawrence.
 Smith, William Claude; Hazelton.
 Smith, William Daniel; Vermillion.
 Smith, William Hamilton; Melvern.
 Smith, Zella Floyd; Thayer.
 Smart, Fred Glenn; Grinnell.
 Snyder, Cora Pearl; Robinson.
 Solier, Lester Edwin; Washington.
 Sparks, Mary Elizabeth; Greensburg.
 Speck, Clara Marie; Nortonville.
 Speer, Raymond Keith; Downs.
 Spencer, Catherine Amelia; *Denver, Colo.*
 Springer, Nell Elizabeth; *Kansas City, Mo.*
 Sprong, Wilbur LaVerne; Oak Mills.
 Spurney, Frank George; Belleville.
 Stacey, Maro Hunting; Leavenworth.
 Stall, Logan Moore; Thayer.
 Staplin, William Watson; McPherson.
 Stauffer, Paul Kenneth; Columbus.
 Steckel, Meda Jean; Ellinwood.
 Stephenson, Lester O.; Little River.
 Stephenson, Paul Noble; Augusta.
 Stevens, Elizabeth; *Kansas City, Mo.*
 Stevens, Lewis J.; Winfield.
 Stevens, Richard Barnett; Lawrence.
 Stevenson, Charles Page; Oberlin.
 Stevenson, George R.; Lawrence.
 Stockton, Walter Eugene; Fredonia.
 Stoddard, Thelma LeEtta; Lawrence.
 Storey, Harvey; Ellsworth.
 Stout, Floyd Hamilton; Hill City.
 Stover, Harry L.; Lincoln.
 Strong, Mary Kathryn; Lawrence.
 Strong, Ruth; Lawrence.
 Stubbs, Margaret Esther; Lawrence.
 Sudsberry, Marvin Luther; Fort Scott.
 Sullivan, James Richard; Wilson.
 Supple, George Howard; Michigan Valley.
 Sutton, Elizabeth Brundage; Lawrence.
 Swift, Garber Cunningham; *Waukomis, Okla.*
 Swinson, Carl; Isabel.
 Symes, Don E.; Harveyville.
 Simms, Arthur Thomas; Hutchinson.
 Tangner, Alma Marie; *Carthage, Mo.*
 Tanner, Myron Thomas; Erie.
 Tate, Winston Rousseau; *Kansas City, Mo.*
 Taylor, Carol; Geneseo.
 Tennal, William Webb; Sabetha.
 Testerman, LeNora Pearl; Lawrence.
 Theis, Raymond Addison; Kansas City.
 Thomas, Roscoe Richard; Fort Scott.
 Thompson, Taylor Glick; Anness.
 Thornburg, Charles William; Potter.
 Thornburg, Neil Thomas; Winchester.
 Thyer, Adna McKinley; Blue Mound.

FRESHMEN—concluded.

Tilley, Ida May; Irving.
 Toler, Sallie Louise; Anthony.
 Travis, George Gus; *Tulsa, Okla.*
 Traynor, Marion Louise; Dodge City.
 Treff, Gertrude; Basehor.
 Tribble, Scott E.; Circleville.
 Troughton, Oliver K.; Seneca.
 Trumble, Dorothy Genevieve; Natoma.
 Tucker, Lee Edmond; Wichita.
 Tummel, Theresa; Lawrence.
 Turner, Joseph Spoor; Kansas City.
 Underwood, Prescott; Lawrence.
 VanPelt, Harold Reifel; Paola.
 Varner, Marion Josephine; Beloit.
 Vaughan, Charles Clarke; Kansas City.
 Vaughn, Dorothy Lee; Neodesha.
 Vaught, Mary Eleanor; *Oklahoma City, Okla.*
 Vincent, Cranston Gordon; Topeka.
 Vincent, Stillman; Nortonville.
 Wahlenmaier, Floyd Camp; Kansas City.
 Wakenhut, Juliett Wilhemina; Salina.
 Wall, Dorothy Charlotte; Lawrence.
 Wall, Harold Haywood; Sedan.
 Walters, John Harold; Kansas City.
 Wandby, George Edward; Gorham.
 Ware, Edwina Etta; Lawrence.
 Washburn, Cornelia; Kansas City.
 Wasson, Roy Higgs; Viola.
 Watson, Benjamin Bernard; Iola.
 Weaver, James Morton; Wichita.
 Weed, Mahlon Stuart; Lawrence.
 Welker, Verling Dorr; Hutchinson.
 Welsh, Arthur Gordon; Kinsley.
 Weltmer, Bessie Ruth; Smith Center.
 Welty, Newell Gwinn; *Bartlesville, Okla.*
 West, Letha Allegra; Ottawa.
 Wheeler, Haywood Coats; Hiawatha.
 Wheeler, James Albert; Marion.
 Wheeler, James Ranney; Lawrence.
 White, Clara Catherine; Bethel.

White, Dorothy Evelyn; Lawrence.
 White, Oba Bernethel; *St. Joseph, Mo.*
 White, Paul Welrose; Pittsburg.
 White, William Lindsay; Emporia.
 Whitney, James Foster; Wichita.
 Wiberg, Lawrence C. E.; Clay Center.
 Wiggins, Hazel Dell; Lawrence.
 Wilbur, Margaret Florence; Wichita.
 Wilcox, Zola May; Lucas.
 Wilhite, Margaret Lucile; Rosedale.
 Williams, Alfred B.; Preston.
 Williams, Lora Alice; *Aurora, Mo.*
 Williamson, Blake Arthur; Edwardsville.
 Williamson, Robert Dayton; Stark.
 Willis, Vergil E.; Iola.
 Wilson, Arbutus Marie; Beloit.
 Wilson, James Garfield; Ashton.
 Windett, George Lawrence; Quenemo.
 Winegar, Marcus B.; Lebanon.
 Withers, Orval Raymond; Pratt.
 Woestemeyer, Armin Edward; Lawrence.
 Wolfson, Marion Estelle; *Kansas City, Mo.*
 Wolters, Helena Johanna; Atchison.
 Wood, Morris Dinsmore; Lawrence.
 Woods, Bert L.; Greeley.
 Wright, Erwin A.; Wichita.
 Wright, Franklin Tobias; Barnes.
 Wulf, John; *Vancouver, Wash.*
 Wunsch, Paul Robert; Argonia.
 Wyandt, Dudley Rhodes; Abilene.
 Wyber, Robert Henry; New York.
 Wynne, Mason Earl; Oronoque.
 Yeats, Lorraine Alberta; *Boulder, Colo.*
 Young, Charles Lindley; Cawker City.
 Young, Ray Douglass; Almena.
 Ziebell, Clemens Leo; Herington.
 Zimmerman, Daniel Sinclair; Troy.
 Zipse, George Vernon; Jewell.
 Zoellner, Fred Winslow; Tonganoxie.

FRESHMEN, 901.

SPECIALS.

*Adams, Merle Louise; Lebanon.
 Agee, Esther Fay; Troy.
 *Allen, Frances; Lawrence.
 *Alsop, Edith Louise; Wakefield.
 *Anderson, Mabel; Vesper.
 Anderson, Mary E.; Alma.
 *Anthony, Ruth L.; Lawrence.
 Apollonio, Nicholas; *Milton, Mass.*
 *Apple, Gladys Myrtle; Lawrence.
 *Ashlock, Dot; De Soto.
 *Atwood, Marguerite; Caney.
 *Barry, Olive Jane; Conway Springs.
 Barton, Helen Margaret; Hutchinson.
 *Batcheller, Norma; Lawrence.
 *Bean, Robert H.; *Lubbock, Tex.*
 Bell, Glenn E.; Attica.
 *Bell, Katherine E.; Cottonwood Falls.
 Bermejo, Fernando V.; *Philippine Islands.*
 Bidwell, Curt Nevling; Kinsley.
 Bishop, Mabel; Potter.
 *Blanc, William R.; *Pawhuska, Okla.*
 Bowersock, Lawrence; Lawrence.
 Boyce, Allen Ward; Minneapolis.
 Brandom, Lena; *Gallatin, Mo.*
 *Brehm, William; Hutchinson.
 Brewer, Loren Flavel; Beloit.
 Britt, Charles Love; *Kansas City, Mo.*
 *Brophy, Athol; *Kansas City, Mo.*
 *Brown, Eugene; Lawrence.
 *Brown, Kenneth S.; Kansas City.
 *Brown, Ruth; Lawrence.
 Bryant, Louise Evans; *Brockton, Mass.*
 Buchanan, Walter Cole; Lawrence.

*Buckland, Theodore; Marion.
 Buckle, Clair Arthur; Stafford.
 *Burgert, Alice; Lawrence.
 *Burgert, Erwin; Lawrence.
 *Burkhalter, Elizabeth; White Cloud.
 Burnette, Ielah Lucille; Linwood.
 *Burnham, Lura Vivian; Oskaloosa.
 *Burton, Gladys; Abilene.
 *Caldwell, Cecil C.; McPherson.
 *Caler, William H.; Claflin.
 Campbell, Mrs. J. S.; Lawrence.
 *Carlton, Luther; Garden City.
 *Carman, Julia; Herington.
 Carney, Mary Florence; Lawrence.
 *Cavanaugh, Charles L.; Perry.
 Childs, Lorene Weber; El Dorado.
 *Clawson, John H.; Lawrence.
 Coldiron, Jesse Clinton; Wakeeney.
 *Colley, Richard P.; *Tulsa, Okla.*
 *Coolidge, Warren; Lawrence.
 *Copeland, Helen; Quenemo.
 *Copp, William; Kinsley.
 *Corel, Glenn James; Lawrence.
 *Cowgill, Russell T.; Lawrence.
 *Cox, Nadine; Lawrence.
 *Crawford, Floyd Horace; Horton.
 *Crawford, James G.; *Harrison, Mo.*
 *Curran, Raymond; Burr Oak.
 *Dailey, Christopher E.; Scottsville.
 *Davis, Jeannette; *Kansas City, Mo.*
 *Dawson, John William; Lawrence.
 Deaver, Richard Wilmot; Wichita.
 *Dickson, Jack S.; Lawrence.

* Enrolled in another school of the University.

SPECIALS—continued.

- Dierking, Clarence Henry; Alta Vista.
 Dill, Jennie W.; Lawrence.
 *Dillon, Dale C.; Coffeyville.
 *Dolph, Richard B.; Lawrence.
 *Druley, Hazel; Peru.
 *Dugger, Hazel; Lewis.
 *Dungan, Richard M.; *Kansas City, Mo.*
 Dunham, Samuel Burton; Wichita.
 *Dunkelberger, John H.; Newton.
 *Dunkley, Frank; Lawrence.
 Dykes, John Russell; Wichita.
 *Eagles, Homer M.; Thayer.
 *Eastman, Relis C.; Greensburg.
 Eikenberry, Florence Shaw; Lawrence.
 *Ellenberger, Deloras; El Dorado.
 *Ellenberger, Glenda; El Dorado.
 *Elliott, Altyn; Princeton.
 *Elmore, Loren G.; Elk City.
 *Elvey, Christian T.; Coffeyville.
 Emberton, Odie Daniel; Lawrence.
 *Evans, Frances Lee; *Enid, Okla.*
 Evans, Harold Clinton; Topeka.
 *Evans, Patricia M.; Topeka.
 *Evans, Wade Hampton; Wakeeney.
 *Fagen, Lowell P.; Kansas City.
 Fearing, Olin Kyrle; Lawrence.
 *Fenton, Joseph M.; Arkansas City.
 *Filson, George William; Kiowa.
 Fisher, Harvey Dennis; Wichita.
 *Fitzgerald, Gladys; Kansas City.
 *Fixley, Everett H.; *Whitehurst, Tex.*
 Fleeson, Richard V.; Sterling.
 *Fleming, Herman V.; Nickerson.
 Foster, Edward Wendell; Lawrence.
 *Foster, Lewis; Lawrence.
 *Fowler, Mildred; Kansas City.
 *Frater, Allen Robert; Fredonia.
 *Freienmuth, Anna; Tonganoxie.
 *Fulks, Josephine; Turon.
 *Gard, Spencer; Iola.
 *Garlinghouse, Marjorie; Iola.
 *Gatewood, Alexander E.; Kansas City.
 Gerhard, Ella Emile; Girard.
 *Gerstengerger, Herbert A.; Eudora.
 *Gill, Wayne I.; Coffeyville.
 Glahn, Eugene; Lawrence.
 Glasco, Fred Hill; Lawrence.
 *Gould, George R.; Dodge City.
 *Granoff, Abraham J.; Lawrence.
 *Gray, Gordon; Chanute.
 *Green, Ralph; *St. Joseph, Mo.*
 *Gregory, Francis; Lawrence.
 *Griswold, Opal; Lawrence.
 *Grinter, Linton E.; Lawrence.
 *Gunby, Merle F.; Buffalo.
 *Gwyn, Mary J.; Waverly.
 Haack, John A.; Florence.
 *Haddock, Marshall; Kansas City.
 Haggart, Maria Jane; Lawrence.
 *Hait, Josephine; Leavenworth.
 Hale, Helen Rogers; Lawrence.
 *Hale, Thelma; Yates Center.
 *Hamilton, Betty Lou; Kansas City.
 Hamilton, Gomer Cortez; Lawrence.
 *Hammon, George; Cherryvale.
 *Hart, Marie; Macksville.
 Harter, Verne Aldred; Douglass.
 *Haskin, Helen; Harper.
 *Haworth, Rose Elizabeth; Lawrence.
 *Henderson, Clyda; Phillipsburg.
 *Henry, Inez Ruth; Leoti.
 *Hess, Benjamin; Lawrence.
 *Hiatt, May Farr; *Kansas City, Mo.*
 Hicks, Ross Lincoln; Norton.
 *Hilsman, Itasca; *Albany, Ga.*
 Hollingshead, Gerald S.; Glen Elder.
 *Hoover, John H.; Lawrence.
 Horton, Evelyn; Lawrence.
 *Howard, Roscoe D.; Wellington.
 *Hoyt, Reginald; *Brockton, Mass.*
 Huey, Frank Gregory; Newton.
 Hughes, Ellen Jeannette; Lawrence.
 *Hults, Alvina; Topeka.
 Hunt, Edwin Harold; Fredonia.
 Hunter, Robert E.; Kansas City.
 *Huntzinger, John Lee; Lawrence.
 *Hyre, Mabel Edith; Lawrence.
 *Icenhower, Emory; Lawrence.
 *Irwin, John William; Kansas City.
 Jackson, Lenore Gertrude; Lawrence.
 *Jackson, Lita Mary; *St. Joseph, Mo.*
 *James, Gale M.; *Kansas City, Mo.*
 *Jarvis, Martin; Arkansas City.
 *Jenks, Helen; Ottawa.
 *Jennings, Ernest William; Lawrence.
 *Jevons, Beulah Helen; Wakfield.
 *Johnson, Bertha; Cambridge.
 Johnson, Earl Jaquius; Winfield.
 *Jones, Chauncey D.; Kansas City.
 *Jones, James E.; Medicine Lodge.
 *Kaul, Paul C.; Paxico.
 *Keeler, Delia Meda; Scottsville.
 *Kell, Waldo Ralph; Lawrence.
 Kendall, Erwin Kenneth; Lawrence.
 *Kennedy, Archibald R.; Winfield.
 *Kindsvater, Emil; Hoisington.
 *King, Walter A.; Lawrence.
 Kinney, Harriet Lovejoy; Atchison.
 *Kirby, Lena Rue; *Independence, Mo.*
 *Kline, Roy P.; Morland.
 *Klooz, Emil; Kincaid.
 *Kness, Karl Ford; Wichita.
 *Koehler, Jerome; Paola.
 *Kruise, Harvey; Halstead.
 *Lacerte, Wilfred; Collyer.
 *Lambert, William P.; Leavenworth.
 *Larkin, Katherine; *Las Vegas, N. Mex.*
 Larsen, Hans Anderson; Mount Hope.
 *Lasure, Mildred; Russell.
 *Lee, Eva May; Yates Center.
 *LeSeur, James Marvin; Lawrence.
 *Leverich, Warren; Kansas City.
 *Levi, Philip; Kansas City.
 *Lightner, Verna Elaine; Mound City.
 Lindley, Georgia Elizabeth; Lawrence.
 *Lines, Marion; Neodesha.
 *Linfitt, Charles; Leavenworth.
 Lingenfelter, Lois Myra; Fredonia.
 Lockwood, Howard; Atchison.
 *Lynn, George; Lawrence.
 *Lynn, Hazel Eugene; *Kansas City, Mo.*
 *MacMurray, Cooper Arthur; Lawrence.
 *Malaby, Richard; Ellsworth.
 *Markley, Max; Parsons.
 *Martin, Edwin; Ottawa.
 *Martin, Ethel; Lawrence.
 *Martin, Wallace; Kansas City.
 Massey, Ruth Ethlyn; Wellington.
 *Mellenbruch, Pearl Leslie; Topeka.
 *Mellenbruch, Victor; Topeka.
 *Meyer, Everett; Bison.
 Millard, Everett Merwin; *Pueblo, Colo.*
 *Miller, John W.; *Springfield, Mo.*
 *Miller, Juanita; *Muskogee, Okla.*
 Miller, Lester; Kansas City.
 *Miller, Ortha J.; Osborne.
 *Miller, Wilma; Lawrence.
 *Miner, Ralph C.; Sabetha.
 *Miner, George; Wilson.
 *Morrison, Frances Mary; Olathe.
 *Murphy, Dean D.; Meade.
 Musselman, Norman Beachy; Arkansas City.
 *McBride, Rheva; Onaga.
 *McCauley, Albert D.; Robinson.
 *McLatchey, Nina M.; Topeka.
 *McMullen, Elva; Great Bend.

SPECIALS—concluded.

- *McNary, Mary; Garnett.
 McPherson, Ophelia Mable; Fort Scott.
 *Nadel, Louis; Hutchinson.
 *Nagle, Mildred B.; St. John.
 *Neely, Vera M.; Lawrence.
 *Nelson, Lorraine; Lawrence.
 *Neihaus, Herman; *St. Louis, Mo.*
 *Nixon, Mabel; Lawrence.
 *O'Brian, Alice; St. Paul.
 *Olds, Gary; Winfield.
 Oles, Lawrence Maple; Independence.
 O'Meara, Edith Florence; Onaga.
 Ong, William; Fredonia.
 Osborn, John Lynn; Lawrence.
 *Pailen, John E.; Garrison.
 *Paire, Leonard; Leavenworth.
 *Palmer, Madge; Greeley.
 *Patterson, Doris; Lawrence.
 *Patterson, Tyler Charles; Girard.
 *Patty, F. Arthur; Lawrence.
 *Pearce, Earl W.; *Buffalo, N. Y.*
 Pearl, A. Suro; Hiawatha.
 *Peckham, Jacob W.; Clay Center.
 Perkins, Edwinna Reed; Lawrence.
 Peters, Charles Mallory; Paola.
 *Petveys, Ferne Grace; Newton.
 *Poirier, Ferdinand; Wathena.
 Porter, Adna Mildred; Strawn.
 Porter, Curtis Cameron; Topeka.
 *Porter, Donald L.; Quinter.
 *Porter, Helen Mary; Larned.
 *Porth, Wallace S.; St. Francis.
 *Potts, Blanche Annie; Ottawa.
 *Pumphrey, Essie; *Fort Worth, Tex.*
 *Putney, David H.; Leavenworth.
 Querfeld, Dorothy Jessie; Lawrence.
 Ramsey, Lauriston, *Craig, Mo.*
 Read, Lathrop B.; Lawrence.
 *Reed, Harold R.; Lawrence.
 *Reule, Vivian; Kansas City.
 *Riddle, Dorothy; Herington.
 *Rinehart, Cleo; Lawrence.
 *Roberts, Harold; La Harpe.
 *Rogers, Lois; El Dorado.
 Romans, Beth; *Brookline, Mass.*
 *Rooney, Francis; *Kansas City, Mo.*
 *Rosenbloom, Zolon; Wichita.
 Rothrock, Ray R.; Wellington.
 *Rudolph, Mrs. Rose; Lawrence.
 Ruppenthal, Jacob Christian; Russell.
 *Saferstein, Abraham; Marysville.
 *Sawyer, Eva M.; *Westboro, Mo.*
 *Schindler, Charlotte; Valley Falls.
 *Schmidt, Tom F.; Galena.
 *Schmidt, Velma; *Kansas City, Mo.*
 *Schnitzler, Fritz William; Wichita.
 *Schreiber, Edwin; Atchison.
 Scofield, Lola Fletcher; Lawrence.
 *Scott, Elsie Ora; St. John.
 *Scott, Hazel; Garnett.
 *Semon, Fred John; Lawrence.
 Severson, Paul Albert; Lawrence.
 *Sewell, Gladys; Elk City.
 *Shane, Mildred; *Kansas City, Mo.*
 *Shaner, Albert; Lawrence.
 *Shelton, Edgar P.; Lawrence.
 *Sherwood, Leon A. S.; Independence.
 *Shillerston, Dewey; Lawrence.
 *Shipley, Zada; Neodesha.
 *Shull, Pearl Mildred; *Durant, Okla*
 Siverd, Hugh Hicks; Winfield.
 *Slason, Earle; Stockton.
 *Smiley, Ruth Hofflander; Lawrence.
 *Smiley, Stanton L.; Wilder.
 *Smith, Elbert F.; Ellinwood.
 *Smith, Grant Robert; Lawrence.
 *Smith, Harold D.; Haven.
 *Smith, Rita; Ellinwood.
 *Smith, Mrs. Wint; Formoso.
 Snyder, Ivan Virgil; Norton.
 Spears, Claude; Stilwell.
 *Spotts, Ruth Mildred; Lawrence.
 *Stables, Colin M.; Wichita.
 *Steven, Walter John; Lawrence.
 *Stevens, Rachel; Lawrence.
 *Stevenson, Claude; Lawrence.
 *Stewart, Paul Fisher; Humboldt.
 *Stimpson, Josephine Frances; Lawrence.
 *Stivers, Doris Edith; Fredonia.
 Stoerker, Frederick; Eudora.
 *Story, Roy; *Bloomington, Neb.*
 *Strahan, Warren; Lawrence.
 *Strain, Helen; Clyde.
 *Strong, Charles Curtis; Lawrence.
 *Summers, Myra; Lawrence.
 *Tatum, Richard Edwin; Erie.
 *Taylor, Edwin M.; Hoxie.
 *Taylor, Stanley; Augusta.
 Thomas, Mrs. Elizabeth; Coldwater.
 *Thompson, Homer; Wichita.
 *Toomey, Richard; Lawrence.
 *Towne, Roy; Topeka.
 *Tummel, Theresa; Lawrence.
 *Turner, Harry McDougal; Lawrence.
 *Turner, Joseph H.; Howard.
 *Uhrlaub, Rudolph R.; Lawrence.
 *VanVelzer, Harry; Fort Scott.
 *VanZandt, Meda Jessie; Hutchinson.
 *Vawter, Fane F.; Cherryvale.
 *Veeder, Kirke C.; Cherryvale.
 Wallace, Charles Elliott; Winfield.
 *Watkins, Mabel Olive; Lawrence.
 *Webster, Redford; Lawrence.
 *Wedell, Emilie; Lawrence.
 *Wheeler, Mayme; *Guthrie, Okla.*
 *Whitcroft, Ruby; Lawrence.
 *White, Reba; Neodesha.
 *Wild, George R.; *Kansas City, Mo.*
 *Williams, John Henry; Kansas City.
 *Williams, Josiah D.; Clay Center.
 *Williams, Ruth; Preston.
 *Wilson, Ruth; Preston.
 *Wilson, Clarence; Lawrence.
 *Wilson, Daphne; Chanute.
 *Wineinger, William W.; Fort Scott.
 *Wingate, Charles R.; Lawrence.
 *Wood, Lawrence E.; Clay Center.
 *Wood, Walter Winfred; Topeka.
 *Wooden, John R.; Liberal.
 *Wright, Thorpe E.; Independence.
 *Wynn, Erwin; Marquette.
 *Youngblood, Stafford; *Oklahoma City, Okla.*
 *Zimmerman, Walter; Kansas City.

SPECIALS, 854.

* Enrolled in another school of the University.

SCHOOL OF ENGINEERING.

SENIORS.

Bell, Arnold Arch; Great Bend.
 Benson, John Leland; Lawrence.
 Blazier, Warren Eugene; Lawrence.
 Boltz, Clarence Weaver; Lawrence.
 Boyd, Arthur Carl; Lawrence.
 Bunn, George Peter; Lawrence.
 Bunn, John William; Lawrence.
 Carman, Julia; Herington.
 Cary, William Tracy; Arkansas City.
 Challiss, John VanHoesen; Atchison.
 Crutcher, Walter Lewis; Lawrence.
 Dawson, John William; Lawrence.
 Dueker, Milton Stanley; Wichita.
 Eagles, Homer Moore; Thayer.
 Elmore, Frank Baugh; Lawrence.
 Etzenhouser, Russell Duone; Kansas City.
 Farnsworth, Clyde Arthur; Douglass.
 FitzGerald, Edgar James; Lawrence.
 Fox, Paul Samuel; Lawrence.
 Goff, Leonard Frank; Wichita.
 Googins, Guss Livingston; Fredonia.
 Haddock, Marshall, jr.; Kansas City.
 Heariold, Frank Cecil; Hutchinson.
 Holland, Frank Delno; Pleasanton.
 Icenhower, William M.; Lawrence.
 Jakowsky, John Jay; *Los Angeles, Cal.*
 King, Walter Allen; Lawrence.

Kohman, Girard Theodore; Dillon.
 LaMer, Joseph Secondule; Leavenworth.
 Leary, Ora George; Kansas City.
 Limbocker, Wayne Ernest; Lawrence.
 Lynn, George; Lawrence.
 Machamer, Hobart Ellis; Kansas City.
 Malkmus, George Adolf; *Kansas City, Mo.*
 Marrs, Jay Dean; Lawrence.
 Marshall, Hugh; Coffeyville.
 Martling, Francis Hodgen; Kansas City.
 Mickey, Samuel Waite; Junction City.
 Miles, Robert Cullen; Lyndon.
 Olmsted, Herbert Wolcott; Lawrence.
 Quinlan, Amos Lawrence; Linwood.
 Randolph, William Marcus; Lawrence.
 Ransom, Paul; Pittsburg.
 Reed, Harold Raymond; Lawrence.
 Rose, Ernest Herbert; Lawrence.
 Ruble, Roland Orval; Parsons.
 Sackett, Guy Elliott; Lawrence.
 Sherwood, Leon Archibald; Independence.
 Stevenson, Clyde Duncan; Lawrence.
 Street, Gordon Frink; Lawrence.
 Waggoner, Jack Holmes; Lawrence.
 Walters, Ray Pearce; Lawrence.
 Williams, James Orla; Lawrence.
 Winters, Ray; Kansas City.

SENIORS, 54.

JUNIORS.

Alport, Abraham J.; Coffeyville.
 Anderson, Harold William; *Kan. City, Mo.*
 Austin, Verle Lorraine; Irving.
 Beltz, Willis Henry; Weir.
 Bennett, Clarence; Stafford.
 Benson, Dale Louis; Greeley.
 Bihr, Samuel Wilks, jr.
 Blum, Howard Freeman; Kansas City.
 Bonebrake, Frederick Thompson; Topeka.
 Bown, William Forest; *Kansas City, Mo.*
 Bradshaw, George Watson; Randall.
 Bush, Paul Lewis; Topeka.
 Calene, Edwin LeRoy; Sylvan Grove.
 Caler, William Richard; Claflin.
 Cave, Aubrey LaVerne; *Lone Jack, Mo.*
 Chandler, George Leland; Topeka.
 Chandler, Ray Joy; Lawrence.
 Cline, Glenn William; Fort Scott.
 Cohn, Byron Spencer; Lawrence.
 Colt, Donald Dennison; Pittsburg.
 Constant, John Laurence; Lawrence.
 Cronk, Seymour Hays; Lawrence.
 Davis, John Clark; Salina.
 Deewal, Lorin William; Argonia.
 Degering, Carl Adolph; Lawrence.
 Eckel, Carl Henry; Douglass.
 Edwards, Leon Everett; Topeka.
 Egan, Kyran William; Lawrence.
 Ege, Howard Davis; Lawrence.
 Eggen, Charles Borton; Garden City.
 Elcock, Edwin Till; Wichita.
 Elvey, Christian Thomas; Coffeyville.
 Fleming, James Leo; Lawrence.
 Garvie, Hugh Alex.; Abilene.
 Hall, Walter; Coffeyville.
 Harker, Vivian Jewell; Lawrence.

Henderson, Russell Stewart; Lawrence.
 Holland, Paul Oscar; Pleasanton.
 Hovey, Stuart Fletler; Kansas City.
 Johnson, Martin Marion; Salina.
 Johnson, William Scott; Lawrence.
 Judkins, Bert Chaffin; Lawrence.
 Kanode, Ralph Dewey; Topeka.
 Kennedy, Miles Simon; Benedict.
 Kerohar, Raymond P.; Lawrence.
 King, Francis Myron; Ottawa.
 Kinkel, John Franklin; Topeka.
 Koehring, Gertrude Florence; Lawrence.
 Lampton, Fred Franklin; Cherokee.
 Lefevre, Armand Joseph; Caney.
 Long, Hiram Chester; Lawrence.
 Love, Edwin Kinsley; Lawrence.
 Luecke, Carl Leon; *Joplin, Mo.*
 MacMurray, Arthur Cooper; Lawrence.
 March, Harry Allen; White Cloud.
 Mason, Ray Benjamin; Lawrence.
 Mason, Robert Frazier; Lawrence.
 Mason, Warren Perry; Lawrence.
 Means, Dwight Raymond; Ottawa.
 Merritt, Paul Provers; McCune.
 Messmore, Harold Eli; Morrill.
 Meyers, Percy Avery; Olathe.
 Mims, Leonard Hassan; Lawrence.
 Mott, Thomas Mitchell; Kansas City.
 Myers, Jared L.; Alden.
 McCall, Dana Hewitt; Hiawatha.
 McGee, Richard Royal; *Kansas City, Mo.*
 Neiswender, Thurlow Levi; Rossville.
 Nettels, George Edward; Topeka.
 Neubauer, Laurence Jesse; Lawrence.
 Ohlhausen, Frank, jr.; Leavenworth.
 Opocensky, Joseph Frank; Cuba.

JUNIORS—concluded.

Owen, Toby Allison; Fort Scott.
 Perkins, Lucius Junius; Lawrence.
 Reedy, Howard Lester; Lawrence.
 Reid, Theodore Carey; Stafford.
 Remmers, George Lawrence; Marion.
 Robertson, John Milton; *Silver City, N. M.*
 Rogers, Wilmer, Howard; Newton.
 Ryan, Royal Rufus; Chapman.
 Schweitzer, John Herman; Kansas City.
 Sherman, Marvin Osmer; Kansas City.
 Snare, Raymond Jordan; Abilene.
 Snyder, Paul Cline; Hutchinson.
 Soxman, Lee Forest; Lawrence.
 Spangler, Karl Bauman; Lawrence.

Stauffer, John Manasses; Randall.
 Stewart, John Robert; Hutchinson.
 Stranathan, James Docking; Wilsey.
 Thomas, Lewis Henry; Louisburg.
 Thompson, Edward Albert; Topeka.
 Todd, John Malcolm; Fort Scott.
 Tracey, John Charles; Pittsburg.
 Van Scoyk, William Vernon; Goodland.
 Wahlstedt, John Robert; *Kansas City, Mo.*
 Webster, Redford Thayer; Lawrence.
 Wells, William Bacon; Lewis.
 White, Karl Hardy; Lawrence.
 White, Oliver Wendell; Solomon.
 Wright, Thorpe Edwin; Independence.

JUNIORS, 100.

SOPHOMORES.

Albach, John Henry; Lawrence.
 Allison, Royden Earl; Princeton.
 Andrews, Lale Clark; Lawrence.
 Appleby, Harry Addison; Cedar Vale.
 Barnby, Herbert Alexander; Lawrence.
 Barter, Leland Lasater; Dodge City.
 Beard, Dwight Moody; Downs.
 Berkey, Fred Minton; Ottawa.
 Berwick, John Frank; Little River.
 Biresak, Edgar Ferdinand; *Kan. City, Mo.*
 Bond, George Walter; Neosho Rapids.
 Brehm, William Wogan; Hutchinson.
 Breyfogle, Louis David; Overland Park.
 Brockway, Parker Woodward; Olathe.
 Brown, Hubert Hull; *Peculiar, Mo.*
 Brown, Rosa Lael; Lawrence.
 Brueckmann, Frank George; Lawrence.
 Bryan, Lloyd Wolson; Crawford.
 Buckland, Theodore Emil; Marion.
 Burris, Truman Ball; Conway Springs.
 Campbell, Clyde Bruce; Lawrence.
 Charles, Homer Herbert; *Warsaw, N. Y.*
 Cheal, Landon Byron; Robinson.
 Clawson, John Hawthorne; Lawrence.
 Cloon, Clifford Reid; Kansas City.
 Cochrane, George Leonard; Jarbalo.
 Coleman, Don Philip; Leavenworth.
 Cornelius, Paul Dean; *Kansas City, Mo.*
 Cox, Walter M.; Paola.
 Cravens, Rolland Poston; Salina.
 Crawford, James Gilmore; *Harrisonville, Mo.*
 Dance, Mark Granville; Pittsburg.
 Davidson, Bradner C.; *Joplin, Mo.*
 Diehl, Clifford Kriebel; Peck.
 Dillon, Clyde Wilson; Anthony.
 Dixon, William Joseph; Lawrence.
 Doane, Philip Dann; Arkansas City.
 Dungan, Richard Melburn; *Kan. City, Mo.*
 Dunkelberger, John Homer; Newton.
 Dye, Milton Lawrence; Jewell City.
 Evans, Amanda Elizabeth; Lawrence.
 Evans, Roger William; Lawrence.
 Eyer, Donald B.; *Kansas City, Mo.*
 Pagan, Lowell Perry; Kansas City.
 Ferguson, Robert Eugene; Minneapolis.
 Frater, Allan; Fredonia.
 Freyler, Frank Rudolph; Overland Park.
 Frowerk, David Kent; Kansas City.
 Gazin, William Rynard; Kansas City.
 Gerstenberger, Herbert Alfred; Eudora.
 Goodnow, Frank Weston; Edwardsville.
 Gregory, Henry Guy; Alton.
 Havekotte, Carl Elliotte; Lawrence.
 Havenhill, Marshall Asher; Lawrence.
 Herron, Ronald; Kansas City.
 Hibbs, Russell Robert; Pretty Prairie.
 Hill, Wallace McCormick; Wilburton.
 Hoagland, Wilbur Wright; Kansas City.
 Holderbaum, Earl; Kansas City.

Holmes, Joseph Addison; Hiawatha.
 Hoyt, Reginald Hunter; *Brockton, Mass.*
 Hughes, Paul Bernard; Lawrence.
 Hunter, John McNeil; *Prairie View, Tex.*
 Huntington, Parkman; *Chama, N. M.*
 Ingham, Winter Sliff; Lecompton.
 Irwin, John William; Kansas City.
 Isern, Elmer Henry; Ellinwood.
 Jackson, Paul Samuel; Lawrence.
 Jamias, Luis Edralin; *Sarrat, P. I.*
 Janes, Gale McCoy; *Kansas City, Mo.*
 Johnson, Arthur St. Clair; Lawrence.
 Jones, James Ebbert Rule; Medicine Lodge.
 Kane, Harry Edward; Parsons.
 Kell, Waldo Ralph; Lawrence.
 Kepple, Herbert; Richmond.
 Kiddoo, Robert Leroy; Burrton.
 Kirby, William Books; Lawrence.
 Klinkenberg, Carl Roland; Tonganoxie.
 Koelzer, Urban Edwin; Seneca.
 Kruse, Harvey Reed; Halstead.
 Lamb, Giles Harvey; Yates Center.
 Lee, Thomas William; Yates Center.
 Lindell, Oscar Vernie; Pleasanton.
 Ludlow, Stewart; Lawrence.
 Mace, Olin Eugene; *Grand Junction, Colo.*
 Markley, Max C.; Parsons.
 Marshall, Tola Albert; Elkhart.
 Martin, Edwin; Ottawa.
 Mason, Robert Wagner; Lawrence.
 Mathews, William LeRoy; *Kansas City, Mo.*
 Mell, William Harvey; *Roanoke, Mo.*
 Meng, Carl Leroy; Spring Hill.
 Mesenhimer, Orland Leslie; Lawrence.
 Middlekauff, Rose Elizabeth; Lawrence.
 Mikesell, John Paul; Atwood.
 Miner, Erle Selden; Sabetha.
 Mnookin, Nathan M.; Lawrence.
 Mohrbacher, Norman Arthur; Marysville.
 Moore, Norman Orville; Yates Center.
 Morgan, Charles William; Lawrence.
 Munch, George Del; Concordia.
 Murphy, Fred; Kansas City.
 Myers, Foster; Conway Springs.
 McCauley, Albert Donald; Robinson.
 McClure, Thomas Mero; *Roswell, N. Mex.*
 McCoy, William John; Coffeyville.
 McFarland, Paul William; Lawrence.
 McGee, Howard Hutcheson; Olathe.
 McKeever, Harold James; Lawrence.
 McRill, Edgar; Tonganoxie.
 McWilliams, Eustace Raymond; Paola.
 Naylor, Howard McDonald; Topeka.
 Neal, Harley Bernard; Independence.
 Neville, Homer Forbes; Kansas City.
 Newby, Neal Dow; Lawrence.
 Nicholson, Ora Frances; Lawrence.
 Norton, Edward Jones; Cherryvale.
 Nottingham, Harold Emmett; Lawrence.

SOPHOMORES—concluded.

- Olson, Herbert Augustus; Lawrence.
 O'Neil, Maurice Allen; Wellsville.
 Orelup, Frank M.; Lawrence.
 Park, Benjamin Paul; White Cloud.
 Parker, Howard J.; Kansas City.
 Paul, Ellis Ellsworth; *Kansas City, Mo.*
 Peckham, Jacob Walter; Clay Center.
 Pendergast, Hugh Joseph; *Kansas City, Mo.*
 Penticuff, John Arthur; Wellsville.
 Peters, Harry Stephen; Minneapolis.
 Porter, Donald Logan; Quinter.
 Porter, Troy Gail; Kansas City.
 Pratt, Abraham; Studley.
 Putney, David Harrison; Leavenworth.
 Ralston, Wallace; Nortonville.
 Renich, Roderick; *Durant, Okla.*
 Ridgeway, Bertrand Stout; Lawrence.
 Roberts, Donald Francois; Lawrence.
 Robson, William Bonjour; Wamego.
 Rodgers, Charles Harvey; Wakeeney.
 Rose, George Edmund; Rosedale.
 Rupard, Homer; *St. Joseph, Mo.*
 Rutledge, Robert Melvin; Topeka.
 Sandifer, Robert Pattison; El Dorado.
 Saunders, Seymore Gordon; Ottawa.
 Schanze, August Edward; Leavenworth.
 Schlag, Lloyd Bright; Leavenworth.
 Sellards, Frank Bolton; Lawrence.
 Shelpman, Edward Joseph; Lawrence.
 Shelton, Edgar Palmer; Lawrence.
 Short, Albert Luther; Leavenworth.
 Shurtliff, Elmer Ellsworth; Seneca.
 Silliman, Joseph Brock; Lawrence.
 Simmonds, Vern; Lawrence.
 Simonds, Wayne W.; Lawrence.
 Sinnard, Melbourne Fredourne; Pleasanton.
- Slason, Earle Bernice; Stockton.
 Smith, Harold Dewey; Haven.
 Smith, Howard Vaughn; Burlingame.
 Snyder, Ralph Waldo; Bucyrus.
 Sparklin, Charles Harold; Hiawatha.
 Spink, Leland Kenneth; Fredonia.
 Starr, Estal Gordon; Neodesha.
 Stucker, Harry McCartney; Ottawa.
 Surtees, Stanley Dwight; Ottawa.
 Swope, Edwin; Morehead.
 Tatum, Richard Edwin; Lawrence.
 Templin, Ernest A.; Minneapolis.
 Thompson, William Keim; Topeka.
 Treu, William Little; Eskridge.
 Tucker, Louis H.; *Brooklyn, N. Y.*
 Turner, Joseph Harold; Howard.
 Van Keuren, Catharine; Baldwin City.
 Vaughan, Everett Johnson; *Dewey, Okla.*
 Watson, Robert Winning; Leavenworth.
 Wendling, Glen Harold; Arlington.
 Wesley, Wendell Phillip; Dodge City.
 White, Edwin Lee; Lawrence.
 Whittaker, John Chestnut; Lawrence.
 Widmer, Henry Carl; Parsons.
 Willhardt, Herbert John; Leavenworth.
 Willis, Cecil Custer; Humboldt.
 Wilshire, Leslie Maynard; Rossville.
 Wolf, Albert Robley; Paola.
 Wooden, John Richard; Liberal.
 Worrall, Anton Wallingford; *K. O. Mo.*
 Younkun, Herbert Rufus; Arkansas City.
 Young, Lloyd Morse; Iola.
 Ziesenis, Roy Gus; Lawrence.

SOPHOMORES, 187.

FRESHMEN.

- Agcaoli, Vicente; *Philippine Islands.*
 Allen, Devere Frank; Kansas City.
 Allen, Erroll Warren; Morganville.
 Allen, Frederic Rollin; Marysville.
 Allen, Luther; Iola.
 Allison, Junior; Lawrence.
 Applegate, Leo; Lawrence.
 Austin, Merrill Theodore; Mullinville.
 Bacon, Cloyd Arnold; Ozawkie.
 Barclay, James Roy; Marquette.
 Barnett, Claude Emmett; St. John.
 Barton, Ross Irvin; Pratt.
 Bear, Dannie Molnere; Harper.
 Beeghly, Floyd J.; *Peculiar, Mo.*
 Bendit, Louis Carol; *Kansas City, Mo.*
 Bennett, Fay Ashley; Topeka.
 Bentley, Wayne Hamilton; Great Bend.
 Bird, Carl Orrin; Topeka.
 Birkhead, George Edward; *Carthage, Mo.*
 Blake, John Emerson; Chanute.
 Bleifeld, Solomon; *Brooklyn, N. Y.*
 Bloom, Otis Webster; *Kansas City, Mo.*
 Bloomgarten, Robert Bernhard; Kansas City.
 Bolick, Vance; Independence.
 Bond, Herbert Alison; Lawrence.
 Bowman, Donovan Archibald; Pawnee Rock.
 Bowman, Waldo Gleason; Lawrence.
 Boyd, Dorolyn; *Colorado Springs, Colo.*
 Bradley, Cecil Uel; Greensburg.
 Bradshaw, George Owen; New Albany.
 Breaky, Edward Paul; Burlington.
 Broady, Jay M.; Kincaid.
 Bross, Harvey Edward; Abilene.
 Brown, Ernest Clyde; Lawrence.
 Brown, Francis Henry; *Kansas City, Mo.*
 Brown, Kenneth S.; Kansas City.
 Bruner, Charles Francis; Hiawatha.
 Buckner, Noel Louis; Wilkey.
 Burke, James Joseph; Merriam.
 Butcher, Homer Rawlins; Marion.
 Cajuca, Jose Victorino; *Camila, P. I.*
 Caldwell, Cecil Clifford; McPherson.
 Cambern, Leon J.; Erie.
 Cambern, Theodore Jessup; Erie.
 Carpenter, Lynn Fay; Burr Oak.
 Cathers, Charles Percy; Coffeyville.
 Chappell, Frank Filbert; *Neukirk, Okla.*
 Chester, William Trinder; Junction City.
 Clardy, Elgin Friesson; *Kansas City, Mo.*
 Clarke, Thomas Moore; Lawrence.
 Classen, Ashley Green; La Cygne.
 Clawson, William Williams; Lawrence.
 Claybaugh, Kelley Wayne; Pretty Prairie.
 Coghill, James Tucker; Lawrence.
 Compton, James Howard; Bonner Springs.
 Conway, Floyd Edward; *Shawnee, Okla.*
 Coolidge, Raymond Albert; Lawrence.
 Coolidge, Warren Algernon; Lawrence.
 Corel, James Glenn; Lawrence.
 Cork, Helen Sarah; Great Bend.
 Cote, Raymond; Weir.
 Covey, Arnold Burton; Baxter Springs.
 Crawford, Floyd Horace; Horton.
 Crowder, Waldo Wilson; Lawrence.
 Cubbison, Loren Milton; Gardner.
 Cullum, Ward Richard; Garnett.
 Darby, Herbert Henry; Garden City.
 Davis, Donald C.; Lyons.
 Davison, Orion; Tribune.
 Denny, Frank Wellington; Garden City.
 De Riget, Esther Elaine; *Marion, N. Y.*
 Dietz, Sterling Heaster; Pratt.
 Dodd, John Milton; Esbon.
 Dolph, Richard Birdsall; McLouth.
 Douglass, Clarence Hannibal; Wamego.
 Dunham, Cecil Logan; Eureka.
 Dunkelberg, Paul Rienzi; *Nardin, Okla.*
 Dunkley, Frank; Lawrence.
 Duvall, Ralph John; Kansas City.
 Eaton, Leonard Ralph; Neodesha.
 Ekstrum, Carl Leonard; Wilkey.
 Elliott, Sam H.; Lawrence.
 Elmore, Loren Glenn; Elk City.

FRESHMEN—continued.

- Ely, Harold Devere; Turon.
 Esmond, Wilton Lee; *Harvard, Ill.*
 Etzenhouser, D. E.; *Kansas City.*
 Fails, Humphrey Milton; Lawrence.
 Farrell, Milton Joseph; Dillon.
 Fearey, Harry John; Anness.
 Fenton, Joseph Michael; *Arkansas City.*
 Filson, George William; *Kiowa.*
 Fitzmorris, Morris Walter; *Fall River.*
 FitzSimmons, James Robert; *Cunningham.*
 Fleming, Herman Vincent; *Nickerson.*
 Flinn, Milton; *Denison.*
 Florea, Ralph T.; *Coffeyville.*
 Friesen, Ernest Clare; *Hutchinson.*
 Gilbert, Robert Leigh; *Lawrence.*
 Gill, Wayne Ingmire; *Coffeyville.*
 Glidden, Horace K.; *Lawrence.*
 Granoff, Barnett Jacob; *Lawrence.*
 Gray, Carl Arthur; *Kirwin.*
 Gray, Judson Gordon; *Chanute.*
 Green, Ralph Justice; *St. Joseph, Mo.*
 Gregory, Francis; *Lawrence.*
 Grinter, Linton Eli; *Lawrence.*
 Gunby, Merle F.; *Buffalo.*
 Hagen, Eugene O.; *Ellinwood.*
 Haggart, Richard Bray; *Lawrence.*
 Hale, George; *Lawrence.*
 Hall, James Martin; *Medicine Lodge.*
 Hamman, George; *Cherryvale.*
 Harding, William Tulla; *Lawrence.*
 Harlan, Glenn Leon; *Webb City, Mo.*
 Harris, Allyn; *Lawrence.*
 Harris, Arthur B.; *Portland.*
 Harris, Clarence A.; *Horton.*
 Hawley, George; *Hutchinson.*
 Heasom, Loren Stewart; *Coffeyville.*
 Hedding, Arthur William; *Burrton.*
 Henderson, Arthur Martin; *Lawrence.*
 Henderson, Mark Dale; *Joplin, Mo.*
 Hendren, Robert Fulton; *Tulsa, Okla.*
 Hockett, Lloyd Jerry; *Wichita.*
 Hohner, Leonard Fenton; *St. John.*
 Holiday, Ralph Milton; *Carthage, Mo.*
 Hoover, Halbert Hadley; *Mound City.*
 Horsman, Raymond J.; *Mt. Hope.*
 Houk, Clarence Philip; *Lawrence.*
 Howe, Orrin K.; *Lawrence.*
 Howell, William Lewis; *Garnett.*
 Howerton, Charles Ross; *Argonia.*
 Huff, Hubert Walter; *Fort Scott.*
 Huffman, Harold Funston; *Havensville.*
 Hughes, Julian Christian; *Lawrence.*
 Hughey, Thomas Myron; *Lawrence.*
 Hunter, Lee Alexander; *Garden City.*
 Huoni, John Simeon; *Tyler, Tex.*
 Hurley, Thomas David; *Minneapolis.*
 Husted, Bert Lorau; *Corona, Cal.*
 Hyland, Edward Francis; *Baldwin City.*
 Icenhower, Emery Albert; *Lawrence.*
 Ingels, James Abraham; *Lawrence.*
 Ivy, Hyrle Arch; *Tescott.*
 Jacques, Thede; *Wichita.*
 James, Wallace McNeal; *Pratt.*
 Jennings, Ernest W.; *Macksville.*
 Johnson, Tarald Jonas; *Scottsville.*
 Jones, Maurice L.; *Lenexa.*
 Jones, Wilbur M.; *Lenexa.*
 Justice, Robert J.; *Edna.*
 Kaul, Claudus Paul; *Paxico.*
 Kelly, Ewing Cole; *Paola.*
 Kennedy, Archibald Robert; *Winfield.*
 Kimber, Ronald Emmett; *Meade.*
 Kindsvater, Emil Fred; *Hoisington.*
 Kingman, Lewis; *Topeka.*
 Kingman, Seth Packard; *Topeka.*
 Klooz, Emil; *Kincaid.*
 Knaus, Elwood Lynn; *Madison.*
 Knowles, Carl Louis; *Wellington.*
 Korb, Martin Frank; *Lawrence.*
 Kuebler, Roland Bryan; *Pomona.*
 Kurek, Thaddeus Casimer; *Leavenworth.*
 LaCerte, Wilfred Joseph; *Collyer.*
 Lambert, William Pettibone; *Leavenworth.*
 Lampton, Virgil McKnight; *Cherokee.*
 Larkin, Willard Ray; *Haviland.*
 Leverich, Warren Hume; *Kansas City.*
 Lewis, Edwin Robert; *Wichita.*
 Light, John Sayre; *Winfield.*
 Lines, Marion Brown; *Neodesha.*
 Linfitt, Charles Arundel; *Leavenworth.*
 Loftus, Thomas Burton; *Lenexa.*
 Love, Robert Ezra; *Caviness, Tex.*
 Luckan, Paul Ernst; *Lawrence.*
 Luft, Elvin Kenneth; *Independence, Mo.*
 Lynam, Ralph; *Moline.*
 Lyne, Elmer Ward; *Miltonvale.*
 Mackin, Alfred Cecil; *Durant, Okla.*
 Mahanna, Raymond Wendall; *Hoxie.*
 Male, Leonard Herrington; *Wakefield.*
 Mann, Kenneth Edward; *Republic.*
 Martin, Wallace Ingersoll; *Kansas City.*
 Matthews, Glenn D.; *Chanute.*
 Maynard, Charles Addison; *Holton.*
 Miller, Andrew Louis; *Jarbalo.*
 Mills, William Leo; *Yates Center.*
 Mills, Neil; *Lyons.*
 Miner, Ralph Chapin; *Sabetha.*
 Mitchell, Ralph E.; *Erie.*
 More, Roy Charles; *Junction City.*
 Morehead, Lawrence Doyle; *Hiawatha.*
 Morgan, Paul Augustus; *Pleasant Hill, Mo.*
 Morris, Elliot Emmet; *Coffeyville.*
 Murphy, Dean Dorman; *Meade.*
 McClure, Lloyd; *Leavenworth.*
 McDaniels, Robert Headly; *Vinita, Okla.*
 McKee, Dick Beguin; *Chanute.*
 McMahan, Rollie O.; *Washington.*
 Nelson, Samuel Wesley; *Lawrence.*
 Norris, Alva John; *Okeene, Okla.*
 Nuckolls, Charles Joseph; *Hutchinson.*
 O'Leary, Edward Martin; *Fredonia.*
 Oliver, Doran Lawrence; *Attica.*
 Ormsbee, Joseph Leroy; *Augusta.*
 Osborne, Ralph Homer; *Ashland.*
 Otto, William Harold; *Fredonia.*
 Pagett, Harold; *Cheney.*
 Pailen, John Edward; *Garrison.*
 Parham, Clifford Lewis; *Lawrence.*
 Parkinson, James Arthur; *Topeka.*
 Partridge, Donald Frederick; *Delphos.*
 Patterson, Coy Van Cleave; *Lawrence.*
 Patterson, Howard DeVaney; *Lawrence.*
 Pearce, Earl W.; *Buffalo, N. Y.*
 Peterson, Claude Meredith; *Wellington.*
 Phillips, Court W.; *Pratt.*
 Pontius, Phillip Arthur; *Lawrence.*
 Porth, Wallace Stanley; *St. Francis.*
 Powell, Harold; *Galena.*
 Prouty, Edwin Rainey; *Kansas City.*
 Purcell, Walter Wayne; *La Crosse.*
 Quiet, William Eaby; *Ozawkie.*
 Ragle, Paul Thornton; *Iola.*
 Rainey, Harold Michael; *Bonner Springs.*
 Rector, Mason Whitney; *El Reno, Okla.*
 Reinking, Arthur George; *Tescott.*
 Remsberg, Everett Lemastur; *Iola.*
 Rhudy, Dee Tillow; *Lincoln.*
 Rinehart, Cleo Adelbert; *Lawrence.*
 Robison, Emmitt Merrill; *Brookfield, Mo.*
 Rogers, Carey Dudley; *Lawrence.*
 Rushmer, Lawrence Hill; *Ogden, Utah.*
 Ryle, George Walton; *Lawrence.*
 Saferstein, Abraham; *Marysville.*
 Salathiel, Frederick Funston; *Independence.*
 Sales, Addison Chester; *Tecumseh, Okla.*
 Salisbury, Walter Wayne; *Osawatimie.*
 Sanders, Robert Duncan; *Kansas City.*
 Saxon, Worth M. Leo; *Lawrence.*
 Schaub, Dwight Frederick; *Muskogee, Okla.*
 Schmidt, Henry Gammer; *Junction City.*

FRESHMEN—concluded.

Schmidt, Tom Finn; Galena.
 Schwinley, Keith Eugene; Lawrence.
 Scofield, Bryant Timothy; *Carthage, Ill.*
 Scott, Jay Dewey; Hutchinson.
 Scott, Richard Peter; Independence.
 Shane, Henry Kamsler; *Kansas City, Mo.*
 Sharp, Howard Burnet; Parsons.
 Shields, William Hobart; *Mangum, Okla.*
 Shire, Robert Lincoln; Lincoln.
 Simms, Chester A.; *Vinita, Okla.*
 Sinclair, Harold King; Hiawatha.
 Slaughter, Robert Fields; Tonganoxie.
 Small, Clifford LeRoy; Gorham.
 Smith, Eldon Bridges; Hutchinson.
 Smith, Harry Gray; Kansas City.
 Smith, Howard William; *Peculiar, Mo.*
 Smith, Verner Fawcett; Hutchinson.
 Sparks, Harold B.; Macksville.
 Sproul, William Maynard; Sedan.
 Stables, Colin McCulloch; Wichita.
 Stelzer, John Irving; Lawrence.
 Stevenson, Burton James; Lawrence.
 Stewart, J. Everett; Sylvan Grove.
 Strahm, Allen David; Lawrence.
 Strahm, Warren Knight; Lawrence.
 Stuhl, Frederick Richard; *Kan. City, Mo.*
 Sweeney, Hubert Lee; Augusta.
 Taylor, Leonard Hale; *Kansas City, Mo.*
 Testerman, Roy Elza; Lawrence.
 Thomas, Llewellyn Hobbart; Baxter Springs.
 Thompson, Edward Bills; Kansas City.
 Thompson, Todd Stewart; Marysville.
 Thorne, Francis Xavier; Leavenworth.
 Thorpe, Louis Albert; Lawrence.
 Tolson, George; Garnett.
 Troughton, Thomas; Seneca.
 Turner, Joseph Lewis; Coffeyville.
 Vawter, Fane Floyd; Cherryvale.
 Ver, Ramon Quevedo; Lawrence.
 Vesper, Joel Henry; Kansas City.
 Walker, Arthur Tappan; Lawrence.
 Wall, Glenn Burdick; Lawrence.
 Warner, Floyd Bernard; Osawatimie.
 Warrell, Walter Henderson; *Kan. City, Mo.*
 Warren, Karl Brocton; Girard.
 Warren, Robert Lee; Silverdale.
 Weaver, Hermon; Madison.
 Weber, Carl Andrew; Salina.
 Weidman, Harry Peter; Wichita.
 Weiler, Nicholas P.; Belleville.
 Wells, Benjamin Finley; *Kan. City, Mo.*
 White, Lester Allen; Effingham.
 Williams, John Willie; *Paris, Tex.*
 Wilson, Marvin; Paxico.
 Wingate, Charles Ray; Varner.
 Wingerd, Leroy Mearl; Lincoln.
 Wise, Edwin Charles;
 Wood, Laurence Edward; Clay Center.
 Woodcock, Randall Walton; Hugoton.
 Woods, Archie Roy; Fredonia.
 Woodward, Marvin Willard; Olathe.
 Wynn, Erwin Lee; Marquette.
 Wynn, Warren Herschel; Lawrence.
 Young, Ray Russell; Lawrence.
 Zimmerman, Walter; Kansas City.

FRESHMEN, 308

SPECIALS.

*Achning, Walter J.; Lawrence.
 *Ainsworth, David; Wichita.
 *Barron, James; Phillipsburg.
 *Bedell, Charles O.; Lebo.
 *Bell, Kenneth G.; Lawrence.
 *Bennett, James L.; Iola.
 *Beasley, Prentis S.; Liberal.
 *Bernard, Clarence; *Oherokee, Okla.*
 *Bingham, Dwight; Junction City.
 *Bower, Burnett O.; Mound City.
 *Brady, Harold R.; *Kansas City, Mo.*
 *Chambliss, Edward L.; *Kansas City, Mo.*
 *Cox, Hubert D.; Cedar Vale.
 *Custer, Cecil; Cedar Vale.
 *Davis, Chauncey M.; Lawrence.
 *Davis, Kenneth A.; Morganville.
 *Diver, Robert W.; Humboldt.
 *Earlenbaugh, Lawrence E.; Claffin.
 *Edwards, William Don; Lawrence.
 *Evans, Ralph William; Leavenworth.
 *Flack, Herron T.; Fredonia.
 *Ferguson, Samuel H.; Atchison.
 *Forman, George William; Alton.
 *Fridell, Myrtle L.; Robinson.
 *Glenn, Erwin; Sedan.
 *Gorrill, Galen A.; Lawrence.
 *Gross, Peter; *Kansas City, Mo.*
 *Gurden, William D.; Topeka.
 *Haack, John Arthur; Florence.
 *Hackenberg, Robert A.; Downs.
 *Hale, Dana J.; Delphos.
 *Hanna, Marcus A.; Lawrence.
 *Hart, George M.; Lawrence.
 *Hay, Louis; Eskridge.
 *Hayden, James R. E.; *Lexington, Mo.*
 *Hicks, Ross L.; Norton.
 *Hunt, Edwin Harold; Fredonia.
 *Jeter, Hugh G.; Alden.
 *Jones, George William; Council Grove.
 *Jones, Judge I.; Kansas City.
 *Johnson, Vansel S.; Valley Falls.
 *Kast, Albert Frank; Lebanon.
 *Keifer, Everett D.; Lawrence.
 *Kness, Carl Ford; Wichita.
 *Knight, Durell H.; Kansas City.
 *Larimore, Ogilvie M.; Clifton.
 *Laslett, Howard P.; Lawrence.
 *LeSuer, James Marvin; Lawrence.
 *Lynn, Robert H.; Lawrence.
 *MacDaniels, Reba G.; *Kansas City, Mo.*
 *Mackey, Herbert M.; Frankfort.
 *Madden, Leo L.; Effingham.
 *Maddox, Albert; Rosedale.
 *Magill, Van H.; Lawrence.
 *Mandeville, Frank P.; Kingman.
 *Meeker, Bruce P.; Wichita.
 *Moore, Victor R.; Parsons.
 *Myers, Francis C.; Lawrence.
 *Musselman, Norman B.; *Arkansas City, Ark.*
 *Nelson, Iril; Lawrence.
 *Nevitt, James R.; Mildred.
 *Oles, Lawrence M.; Independence.
 *Pate, Clarence H.; Walnut.
 *Patterson, Tyler Charles; Girard.
 *Pease, Cecil C.; Topeka.
 *Petrzilek, Frank Paul; Horton.
 *Pitman, Will D.; *Enid, Okla.*
 *Pumphrey, Lloyd W.; Pittsburg.
 *Ramsey, Lauriston; *Craig, Mo.*
 *Ray, Hartzell H.; Marion.
 *Ringle, Lloyd C.; Pittsburg.
 *Rollow, R. Herbert; Russell.
 *Sampson, Elbert F.; Leavenworth.
 *Schwartz, Joe; Lawrence.
 *Smith, Theodore S.; Kansas City.
 *Spencer, Ray P.; Lawrence.
 *Stanford, David E.; Lawrence.
 *Steininger, Edith; Chapman.
 *Stevenson, Charles P.; Oberlin.
 *Sterling, Lucile; Lawrence.
 *Stockebbrand, Ira D.; Yates Center.
 *Story, Roy G.; *Bloomington, Neb.*

* Enrolled in another school of the University.

SPECIALS—concluded.

- | | |
|---|---------------------------------------|
| Thomas, John Duguid; Lawrence. | *Wilcox, Fred J.; Lawrence. |
| VanHoesen, George G.; Baldwin City. | *Wilkerson, Vernon A.; Kansas City. |
| *Vermillion, Frank Howard; Lyons. | Williamson, Thurman Henry; Oskaloosa. |
| Weakley, Franklin Eugene; <i>Kansas City, Mo.</i> | *Wing, Monte E.; Columbus. |
| *Weston, George F.; Lawrence. | *Wirth, Bernard A.; Red Wing. |

SPECIALS, 92.

* Enrolled in another school of the University.

SCHOOL OF FINE ARTS.

SENIORS.

Constant, Olive Jane; Lawrence.
 Creek, Olive May; *Kansas City, Mo.*
 Drought, Doris Faith; *Kansas City, Mo.*
 Gaumer, Lucie Viridilla; Lawrence.
 Hargett, Marion; Baldwin City.
 Huoni, Josephine Ruth; *Tyler, Tex.*
 Imus, Irene; *St. Joseph, Mo.*
 Jackman, Laura Susie; Wichita.
 Kettering, Charles V.; Miltonvale.
 Leach, Fred George; Lawrence.

Novel, Doris Reita; Rosedale.
 Osborn, Mrs. Sylvia Alford; Lawrence.
 Phinney, Helen Lucille; Oskaloosa.
 Porter, Helen Mary; Larned.
 Raub, Lorna Marie; Lawrence.
 Riddle, Dorothy Winifred; Herington.
 Tudor, Mary Margaret; Holton.
 Weed, Helen Irene; Lawrence.
 Whitcroft, Ruby Harriett; Lawrence.

SENIORS, 19.

JUNIORS.

Bair, Ava; Waverly.
 Barry, Olive Jane; Conway Springs.
 Batcheller, Norma; Lawrence.
 Boerstler, Ruth Brandle; Chanute.
 Chittendon, May Jordan; *Kansas City, Mo.*
 Druley, Cemth Hazel; Peru.
 Gillette, Esther; Highland.
 Glead, Joanna; Greenwood.
 Hale, Thelma Belle; Yates Center.

Jenks, Helen Dorothy; Ottawa.
 Kell, Helen Hillman; Lawrence.
 McBride, Rheva; Onaga.
 O'Brien, Elizabeth Delmarr; Lawrence.
 Pounds, Mildred; *Joplin, Mo.*
 Shafer, Josephine; Colby.
 Shane, Mildred Dora; *Kansas City, Mo.*
 Shull, Pearl Mildred; *Durant, Okla.*
 Summers, Myra Cochran; Lawrence.

JUNIORS, 18.

SOPHOMORES.

Ashlock, Dot; De Soto.
 Barnes, Gladys; Barnes.
 Brown, Eugene Jesse; Lawrence.
 Burkey, Elena Ruth; Arkansas City.
 Cox, Nadine; Lawrence.
 Ellenberger, Deloras Rebecca; El Dorado.
 Ellenberger, Glenda Quintilla; El Dorado.
 Fallis, Mabel Faye; Dighton.
 Firebaugh, Lena; St. John.
 Fowler, Madelen; Perry.
 Fuls, Josephine; Turon.
 Gafney, Ray E.; Winfield.
 Gatewood, Alexander Enrico; Kansas City.
 Glasgow, Octavia Magoffin; Ft. Leavenworth.
 Gould, Archibald Osgood; *Kansas City, Mo.*
 Haskin, Helen Dolores; Harper.
 Helmick, Dora; Lawrence.

Hilkey, Edna Marie; Lawrence.
 Johannes, Georgia Marion; *Lamar, Mo.*
 Johnston, Cozette; Eureka.
 Kauffman, Mary Eulalia; Oakley.
 Keeler, Delia Meda; Scottsville.
 Kirby, Lena Rue; *Independence, Mo.*
 Kobes, Gayl Bernardine; Almena.
 Kohler, Bula Ella; La Harpe.
 Mayer, Minnie; Junction City.
 Miller, Dorothy Margaret; Sabetha.
 McDougal, Vida Lucile; Lawrence.
 Neal, Ruth Elizabeth; *Cleveland, Okla.*
 Pouliot, Adrian S.; Damar.
 Sawyer, Eva Marie; *Westboro, Mo.*
 Semon, John Frederic; Lawrence.
 VanZandt, Meda Jessie; Hutchinson.
 Wellcom, Mary Louise; Hiawatha.

SOPHOMORES, 34.

FRESHMEN.

Adams, Merle Louise; Lebanon.
 Anderson, Mabel; Vesper.
 Anthony, Ruth Lemert; Lawrence.
 Apple, Gladys Myrtle; Lawrence.
 Atwood, Marguerite; Caney.
 Ayers, Annette Marian; Wamego.
 Bell, Katherine Elizabeth; Cottonwood Falls.
 Bender, Vere William; Parsons.
 Blanc, William Rowland; *Pawhuska, Okla.*
 Bradbury, Elizabeth Kennard; Paola.
 Brophy, Athol; *Kansas City, Mo.*
 Burkhalter, Elizabeth Dora; White Cloud.
 Burnam, Lura Vivian; Oskaloosa.
 Carlton, Luther Findley; Garden City.
 Chapman, Doris; Conway Springs.
 Chace, Florence Lorraine; Shawnee.
 Chase, Laura Lucy; Coffeyville.
 Clark, Amy B.; Mankato.

Clark, Lucille E.; Elk City.
 Clark, Mildred May; Lawrence.
 Cloggett, Gladys Dola; Atchison.
 Crump, Leah Emma; Kansas City.
 Cunningham, William Wells; Denton.
 Dickson, Jack Stewart; Lawrence.
 Duckett, Harvey Eugene; Kansas City.
 Dugger, Hazel; Lewis.
 Evans, Frances Lee; *Enid, Okla.*
 Evans, Patricia MaKerna; Topeka.
 Fisher, Marguerite; Caney.
 Ford, Elson Asahel; Topeka.
 Fowler, Mildred Helen; Kansas City.
 Fox, Richard Edward; Washington.
 Freienmuth, Anna Marie; Tonganoxie.
 Gabler, Waunita Cecilia; Wichita.
 Garlinghouse, Marjorie Pearl; Iola.
 Griswold, Opal Ruby; Lawrence.

FRESHMEN—concluded.

- Gwyn, Mary Jean; Waverly.
 Hait, Josephine; Leavenworth.
 Hambleton, Irma; De Soto.
 Hamilton, Betty Lou; Kansas City.
 Hart, Edwinna Marie; Macksville.
 Henderson, Clyda; Phillipsburg.
 Hershberger, Crystal Lucile; Greensburg.
 Hulst, Alvina B.; Topeka.
 Idol, Louise Jane; Robinson.
 Jaillite, Majohrea Anna; Council Grove.
 Johnson, Helen Maude; Lawrence.
 King, Etta Marie; *Shawnee, Okla.*
 Kirk, Ruth; Conway Springs.
 Kline, Roy Preston; Morland.
 Larkin, Katherine; *Las Vegas, N. Mex.*
 Lasure, Mildred Pearle; Russell.
 Layton, Walter Adonis; Salina.
 Lee, Eva May; Yates Center.
 Lightner, Verna Elaine; Mound City.
 Lowry, Mary Elizabeth; *Kansas City, Mo.*
 Lynn, Hazel Eugene; *Kansas City, Mo.*
 Malaby, John Richard; Ellsworth.
 Miller, Ortha June; Osborne.
 Miller, Wilma Ruth; Lawrence.
 Morrison, Mary Frances; Olathe.
 McChesney, Marian; Clay Center.
 McDowell, Ruth Orpha; *Ponca City, Okla.*
 McLaughlin, Louise Ellis; Greensburg.
 McMullen, Elva Barbara; Great Bend.
 McNary, Mabel Ruth; Garnett.
 Nagle, Mildred Ban; St. John.
 Neely, Vera Marie; Lawrence.
 Nelson, Gladys Helen; Lawrence.
 Nelson, Loraine; Lawrence.
 O'Bryan, Alice; St. Paul.
 Palmer, Madge Hazelle; Greeley.
 Patterson, Doris Kathryn; Lawrence.
 Prichard, Mildred Kathryn; *Lorinor, Iowa.*
 Pumphrey, Essie Bee; *Fort Worth, Tex.*
 Reule, Vivian; Kansas City.
 Richter, Mrs. Minnie Woddell.
 Riley, Frances; Soldier.
 Rogers, Lois Rachel; El Dorado.
 Rooney, Frances Ida; *Kansas City, Mo.*
 Sacher, Ruth Helen; Holton.
 Schindler, Charlotte Frances; Valley Falls.
 Schmidt, Velma Allene; *Kansas City, Mo.*
 Schreiber, Edwin; Atchison.
 Scott, Hazel Louise; Garnett.
 Sewell, Gladys Etta; Independence.
 Shipley, Zada Elda; Neodesha.
 Smith, Rita Pauline; Ellinwood.
 Speer, Vering Wilhelmena; Olathe.
 Spotts, Ruth Mildred; Lawrence.
 Stevens, Rachel; Lawrence.
 Stivers, Edith Doris; Fredonia.
 Tucker, Marjorie Winslow; Lawrence.
 Watkins, Helen Roberta; Lyons.
 White, Reba Pauline; Neodesha.
 Williams, Ruth Lucille; Preston.
 Wilson, Dephne Elizabeth; Chanute.
 Wishropp, Frieda Hermina; Paola.

FRESHMEN, 98.

SPECIALS.

- *Abrams, Beatrice; Lawrence.
 Ackerman, Bernice; Lawrence.
 Allen, Sarah Frances; Lawrence.
 Archiquette, Pearl; *Oneida, Wis.*
 Armstrong, Margaret; Lawrence.
 *Armstrong, Ruth I.; McPherson.
 Arnold, Grace; Lawrence.
 Athey, LeNota Mildred; Turon.
 Bair, Roberta M.; Waverly.
 *Baird, Dorothy; Agenda.
 Barteldes, Elsa; Lawrence.
 Baty, Marcia S.; Lawrence.
 *Baumgartner, Leona; Lawrence.
 *Bentley, Leslie R.; Lawrence.
 Bertenshaw, Mrs. H. G.; *Nowata, Okla.*
 *Bishop, Mabel; Potter.
 *Blackburn, Glessie; Stafford.
 Blackmar, Dorothy; Lawrence.
 *Bloomer, Joseph; Clafin.
 *Blymn, Ralph; Fredonia.
 *Bredberg, L. Elliott; Clay Center.
 *Brice, Mildred; Cimarron.
 *Brown, Neva Anna; Minneapolis.
 *Brown, Ruth P.; *El Paso, Tex.*
 *Brueckmann, Erna; *Kansas City, Mo.*
 *Buck, Helen Elizabeth; Lawrence.
 *Buchner, Mary; *Millville, Ark.*
 Burden, Cecil; Hutchinson.
 *Burkholder, Clarence; McPherson.
 Bussing, Mrs. Grace; Topeka.
 Butler, Florence V.; Lawrence.
 *Butler, Louis; Winona.
 Butcher, Margaret; Lawrence.
 *Campbell, Harriett; Lawrence.
 *Campbell, Merrill; Lawrence.
 Cantrell, Orel; Lawrence.
 Carder, Lorane; Lawrence.
 *Carey, Nellie; Hutchinson.
 *Carney, Alice Burton; Concordia.
 *Carpenter, Harry E.; Mont Ida.
 *Carpenter, Lynn F.; Burr Oak.
 Carter, Aleene; Lawrence.
 *Chaplin, Gladys; Edgerton.
 *Chase, Laura Lucy; Lawrence.
 *Christine, Dorothy; Lawrence.
 *Christman, Mary; Topeka.
 *Clark, Adeline Beatrice; Garden City.
 *Clark, Ethel C.; Mankato.
 *Clouse, Ruth Velma; Cunningham.
 *Cohn, Marcel D.; Lawrence.
 Cook, Hazel Mearl; Lawrence.
 *Cooper, Lloyd F.; Hoxie.
 *Correll, Loretta Pauline; Atwood.
 *Cork, Helen Sarah; Great Bend.
 Counts, Mary; Baldwin City.
 Courtney, Mary E.; Lawrence.
 *Cross, Austa L.; Quenemo.
 Crouse, Theresa; Arkansas City.
 Dana, Helen; Lawrence.
 *Daugherty, Dana; Lawrence.
 Dean, Grace M.; Valley Falls.
 *Docking, Alice; Lawrence.
 Donaghey, Reba V.; Lawrence.
 *Douthitt, Mrs. Herman; Lawrence.
 Dressler, Mrs. Ethel; Mankato.
 *Dougherty, Norma J.; *Muskogee, Okla.*
 *Dunakin, Gladys; Lawrence.
 Eddy, Mrs. Nelle; Republic.
 *Eggleston, Edward; McLouth.
 Elder, Rosamond; Redfield.
 Elliott, Allyn; Princeton.
 Elsey, Elizabeth; Lawrence.
 *Engle, Dorothy; Abilene.
 *Eytchison, Vivian; Onaga.
 *Fengel, Frances Jessie; Abilene.
 *Fergus, Cecil; Kingman.
 Fisher, Pearl Josephine; Wichita.
 Fitzgerald, Gladys; Kansas City.
 Follett, Arthur F.; *Fairmount, Minn.*
 *Francisco, Ethel; *Enid, Okla.*
 *Frederick, Byron; Bonner Springs.
 Garrett, Madge; Lawrence.
 *Garvin, Arthur; Erie.
 Garwood, Archie; Lawrence.

* Enrolled in another school of the University.

SPECIALS—concluded.

- *Girard, Edward; Windom.
 *Glasgow, Octavio; Fort Leavenworth.
 *Glasscock, Laird V.; Parkerville.
 *Goodner, Kenneth; Baxter Springs.
 *Gottlieb, Selma; Pleasanton.
 *Green, Mary; Kiowa.
 *Graves, Myrtle; Atwood.
 *Greves, Zabelle; Lawrence.
 *Hall, James M.; Medicine Lodge.
 *Hallam, George A.; Melvern.
 *Harris, Alberta; Lawrence.
 *Hart, Helen; Wichita.
 *Hart, Myrl Georgia; Macksville.
 *Hawes, Virginia Anna; Lawrence.
 *Hawley, George; Hutchinson.
 *Hays, Mrs. H. C.; *Kansas City, Mo.*
 *Henderson, Mrs. Margaret; Lawrence.
 *Henry, Gladys; Lawrence.
 *Higgins, Dorothy; Lawrence.
 *Hill, Aeo Marium; Neodesha.
 *Hill, Bertha Louise; Lawrence.
 *Hobbs, Loren; Lawrence.
 *Holiday, Celia Pauline; Lawrence.
 *Hopper, Frances; Lawrence.
 *Huff, Bonnie Mae; Preston.
 *Humble, Mrs. H. W.; Lawrence.
 *Humphrey, Anita; Chanute.
 *Hunter, Mrs. Ada B.; Lawrence.
 *Hyre, Mabel; Lawrence.
 *Jameson, Elsie Dean; Abilene.
 *Johnson, Cleta; Lawrence.
 *Johnson, Ruth; Lawrence.
 *Kennedy, John B.; *Flagstaff, Ariz.*
 *Kepler, Frances D.; Lawrence.
 *Kibler, Katharine; Lawrence.
 *King, Mrs. Ada L.; Lawrence.
 *Kirker, Wm. Earl; Uniontown.
 *Knapp, Leslie E.; Arkansas City.
 *Kohman, Frances; Dillon.
 *Krisan, Velma May; Haddam.
 *Lacy, Blanche Mary; Anthony.
 *Lacy, Opal Maude; Anthony.
 *Lacy, Pearl; Anthony.
 *Laslett, H. P.; Lawrence.
 *Lee, Thomas Wm.; Yates Center.
 *Light, Flora Deth; Winona.
 *Lindstrom, Florence; Coldwater.
 *Long, Gladys; *Kansas City, Mo.*
 *Love, Anita G.; Lawrence.
 *Lavery, Euthalia; *Kansas City, Mo.*
 *Mackie, Elizabeth; Lawrence.
 *Martin, Murray; Linwood.
 *Merrill, Emma Estella; Lawrence.
 *Merritt, Grace Ardene; Haven.
 *Miller, Juanita; Lawrence.
 *Milton, Kathryn Mary; Elk City.
 *Minger, Dorothy; Bern.
 *Morrison, Ralph E.; Lawrence.
 *Morrison, Ruthie Jane; Lawrence.
 *Myers, Mary; Lawrence.
 *McClung, Ruth; *Washington, D. C.*
 *McCort, Waldo; Conway Springs.
 *McDonald, Ruth; Lawrence.
 *McHenry, Lois H.; Grantville.
 *McKibbin, Mabelle; Lawrence.
 *McLatchey, Nina; Topeka.
 *MacMurray, Cooper Arthur; Lawrence.
 *Neale, Mildred; Coffeyville.
 *Neely, Helen; Lawrence.
 *Nelson, Gladys; Lawrence.
 *Nelson, Mary; Ottawa.
 *Nonken, Edith; Burns.
 *Nungesser, Ella; Lawrence.
 *Ober, Mrs. Grace; Lawrence.
 *Oppenstein, Mayme; *Kansas City, Mo.*
 *Payne, Mrs. Rex; Hutchinson.
 *Peck, Mrs. M. M.; *Kansas City, Mo.*
 *Penney, Harriet; *Enid, Okla.*
 *Perkins, Edwinna R.; Lawrence.
 *Perkins, Mrs. G. O. (Clara); Lawrence.
 *Pettit, Geraldine; Neodesha.
 *Pierce, Frances; Junction City.
 *Potter, Paul; Herington.
 *Pyle, Mary Llewellyn; Lawrence.
 *Rankin, Laura; Lawrence.
 *Raynolds, Ruth; Mankato.
 *Reilly, Margaret; Leavenworth.
 *Rich, Mrs. Charlotte; Lawrence.
 *Robbins, Clarence E.; Wheaton.
 *Robinson, Mary Bernadette; Potter.
 *Romans, Beth; *Brooklyn, Mass.*
 *Rudolph, Mrs. Rose; Lawrence.
 *Rumberger, Armena Helen; Lawrence.
 *Scotfield, Mrs. Lola; Lawrence.
 *Seaman, Mrs. Gertrude; Lawrence.
 *Sehon, Helen; Leecompton.
 *Shores, Belva Agnes; Burr Oak.
 *Simon, Edith; Kansas City.
 *Skilton, Helen; Lawrence.
 *Slavens, Lillian; Hutchinson.
 *Smith, Esther B.; Riley.
 *Smith, Robert M.; *Kansas City, Mo.*
 *Smith, Vera Grace; Morland.
 *Speck, Clara Marie; Nortonville.
 *Standley, Harold G.; *Laclede, Mo.*
 *Stanley, Constance; Lawrence.
 *Stauffer, Nina Aldean; Randall.
 *Stephens, Isabel W.; Atchison.
 *Strand, Lillie O.; Independence.
 *Strickler, Lois; Hunnewell.
 *Swenson, Esther L.; Lawrence.
 *Taylor, Irene; Lawrence.
 *Thomas, Aileene L.; Lawrence.
 *Thompson, Marion H.; Lawrence.
 *Tibbals, Lucile; Lawrence.
 *Tilley, Pearl; Frankfort.
 *Treff, Lurana; Basehor.
 *Varner, Luella; Iola.
 *Vaughn, Christine; Ottawa.
 *Vickrey, Marguerite; Lawrence.
 *Wagstaff, Jeannette; Lawrence.
 *Wall, Dorothy; Lawrence.
 *Walters, Helena Johanna; Atchison.
 *Walton, Helen; Lawrence.
 *Washburn, Frances; Topeka.
 *Weed, Blanche; Lawrence.
 *Wells, Ben F.; *Kansas City, Mo.*
 *Weltmer, Ruth; Smith Center.
 *Whaley, Jessie; Lawrence.
 *Whitcomb, Edna O.; Lawrence.
 *White, Clara C.; Bethel.
 *Wilson, Daphne; Chanute.
 *Wood, Isabel; Lawrence.
 *Wood, Oliver S.; Weskan.
 *Young, Ray; Lawrence.

SPECIALS, 219.

* Enrolled in another school of the University.

SCHOOL OF LAW.

SENIORS.

Adams, Mark Hannah; Liberal.
 Bell, Alexander Rankin; Chetopa.
 Brown, Benjamin Harris; Lawrence.
 Colley, Richard Price; *Tulsa, Okla.*
 Cowgill, Russell Twaddle; Lawrence.
 Davenport, Ross; Lawrence.
 Fink, Floyd Melvin; Downs.
 Granoff, Abraham Jacob; Lawrence.
 Jensen, Bernard Francis; Emporia.
 Keaven, John Patrick; Wathena.
 Lobaugh, Farel Roy; Washington.

Melvin, George Kimball; Lawrence.
 Milner, John M.; Kansas City.
 Pausch, Fred LeRoy; Atchison.
 Pedroja, Edward Emil; Emporia.
 Pringle, James Thomas; Alma.
 Pringle, Kenneth Wilkie; Alma.
 Ritter, Cecil Henry; Clifton.
 Taylor, Stanley Clyde; Augusta.
 Terrell, Frank Hixon; Holton.
 Walsh, Charles Albert; Beloit.

SENIORS, 21.

MIDDLES.

Adair, Ruth May; Lawrence.
 Banker, Glenn Victor; Russell.
 Bauman, Edwin Rudolph; Wellington.
 Benton, Willard Merriam; Kansas City.
 Brown, Jack Prescott; Lawrence.
 Campbell, Carl Benton; Iola.
 Carper, Charles Clay; Minneapolis.
 Cobb, William Ballinger; Lawrence.
 Colter, Lloyd Clarence; Chetopa.
 Davison, William McKinley; St. John.
 Duff, Louis Dunlap; Lawrence.
 Eastman, Relis Carl; Greensburg.
 Etling, John August; Belpre.
 Evans, Carlos William; Tonganoxie.
 Evans, Wade Hampton; Wakeeney.
 Flagg, Donald Sergeant; Lawrence.
 Floyd, Dean Lewis; Sedan.
 Fulton, Hamilton R.; Sabetha.
 Galle, James Lamar; McPherson.
 Golden, Reed Hollister; Kensington.
 Goodwin, Harold Wilford; Woodston.
 Gordon, Merlin Vivian; Arkansas City.
 Graham, Hilton Wescott; Hiawatha.
 Gregory, Dwight Omar; Alton.
 Henderson, Algo Donmyer; Solomon.
 Hobart, Charles Harrison; Topeka.
 Holland, Benjamin Leroy; Lawrence.
 Joslin, Robert William; Hugoton.
 Koehler, Jerome Sheridan; Paola.
 Lakin, Albert Hall; Emporia.

Lang, Donald Buzick; Salina.
 Levi, Philip Lewis; Kansas City.
 Lomborg, Arthur C.; Horton.
 Mendenhall, George Lester; Gove.
 Mendenhall, Richard Harlan; Gove.
 Mitchell, John Wesley; Perry.
 Monteith, John Nelson; *Kansas City, Mo.*
 McGinnis, Walter Fletcher; El Dorado.
 Nadel, Louis; Hutchinson.
 Neighbors, Glen Moomaw; McPherson.
 Perkins, Oscar Floyd; Meade.
 Randall, Charles Bromfield; Lawrence.
 Rich, Horace Hakeo; Coldwater.
 Robertson, Robert Lorin; Lawrence.
 Rogers, Victor Jenkins; Wichita.
 Schell, Oliver W.; Lawrence.
 Sherwood, William Jesse; *St. Joseph, Mo.*
 Shillerston, Dewey; Lawrence.
 Simon, Loren Dale; Lawrence.
 Slonaker, John Orin; Lawrence.
 Smiley, Stanton Lambert; Wilder.
 Smith, Elbert Francis; Ellinwood.
 Stringfellow, Fred Conway; McPherson.
 Temple, George Robert; Wichita.
 Toomey, Richard Allen; Lawrence.
 Washington, Herschel Lawrence; Leoti.
 Wedell, Hugo Theodore; Lawrence.
 Welch, Kenneth; Emporia.
 Wild, George Ruder; *Kansas City, Mo.*
 Woodward, Victor D.; Delphos.

MIDDLES, 60.

JUNIORS.

Allard, Dean C.; Osawatomie.
 Almond, Roger Price; Wichita.
 Arnall, Paul McGrew; Elk Falls.
 Bailey, Clarence Emmitt; Lawrence.
 Bean, Robert H.; *Lubbock, Tex.*
 Bever, Lawrence Espy; Colby.
 Bidwell, George Henry; Kinsley.
 Blackburn, S. Robert; Cottonwood Falls.
 Bolton, Harry Benjamin; Alta Vista.
 Briese, Erwin L.; *Plainview, Minn.*
 Casner, Carol Marguerite; *Kan. City, Mo.*
 Clevenger, Louis Edgar; Concordia.
 Conroy, William Patrick; Beloit.
 Cubbison, James Ken; Kansas City.
 Daily, Christopher Edmund; Scottsville.
 Davis, William Russell; *Nowata, Okla.*
 Delaney, Andrew Oliver; Leona.

Dillon, Dale Crowel; Coffeyville.
 Farrell, Roy Christopher; Pratt.
 Fenning, James C.; Leavenworth.
 Fink, Louis Osterroth; Lawrence.
 Fleeon, Howard Tebbe; Sterling.
 Foulston, Sidney Lawrence; Wichita.
 Gard, George Edmond; Iola.
 Gard, Spencer A.; Iola.
 Glenn, Dayton Furse; Robinson.
 Gorrill, Clarence Marshall; Lawrence.
 Gott, Henry Vivion; Bronson.
 Gould, George Ratliff; Dodge City.
 Gress, Roy Ketcham; Lecompton.
 Haines, Lafe Johnson; Galena.
 Haworth, Paul; Lawrence.
 Hayes, Philip Cadet; Iola.
 Hensley, Elbert Everest; Rose Hill.

JUNIORS—concluded.

Holland, Clifford Buthven; Russell.
 Howard, Harry Vandever; Arkansas City.
 Huntzinger, John Lee; Lawrence.
 Jackson, Bronce; Barnard.
 Jackson, Dorothy Perkins; Barnard.
 Jamison, Edward Hugh; Idana.
 Jarvis, Martin Elliott; Arkansas City.
 Johnson, John Wesley; Newton.
 Jones, Paul Robert; Council Grove.
 Kimmel, Walter L.; Cherokee.
 Lundblade, Leon William; Jamestown.
 Meyer, Everett R.; Bison.
 Miller, John Weston; *Springfield, Mo.*
 Miner, George Dewey; Wilson.
 Mitchell, Samuel Eben; Lawrence.
 Murphy, Albert P.; Lawrence.
 McCandless, Earl; Hutchinson.
 McElroy, John Willis; Lawrence.
 McKinney, Earl Bradley; Iola.
 O'Connor, William Thomas; Fort Scott.
 Patterson, Edward W.; Pittsburg.
 Penney, Elvin Cecil; Lawrence.
 Peters, Shirley Wilmont; Lawrence.
 Phipps, Read Omar; Lawrence.
 Pugh, Clifford Henry; Junction City.
 Robbins, Riley Oran; Yates Center.
 Rogers, Forrest Monroe; Wellington.

Rosenbloom, Zolon; Wichita.
 Scovel, Jay Winn; Jefferson.
 Shaner, Albert Holmes; Lawrence.
 Sheeley, Virgil P.; Washington.
 Shofstall, Charles K.; Kansas City.
 Spurgeon, Tustan Lee Roy; Kansas City.
 Stanton, Earl Clyde; Leavenworth.
 Steinle, John David; Wilson.
 Stevenson, George L.; Lawrence.
 Stevenson, Robert Markland; Salina.
 Stodder, Richard Henry; Burden.
 Stone, Sylvan Ralph; *St. Joseph, Mo.*
 Thomson, Edwin Rea; Wichita.
 Thorpe, Ola Anderson; Morganville.
 Veeder, Kirke Coldwell; Cherryvale.
 Vermillion, Frank Howard; Lyons.
 Waggener, Balie Peyton; Atchison.
 Walker, D. Arthur; Arkansas City.
 Waugh, John Young; Eskridge.
 Wheeler, Eugene Laurene; Wichita.
 Wilkinson, Virgil Milton; Wichita.
 Williams, Josiah Davies; Clay Center.
 Williams, J. Wallace; Lawrence.
 Winsor, Carl Isaac; Atchison.
 Woelk, Rudolph John; Russell.
 Woodward, Richard Clarkson; Lawrence.
 Woody, Warren Vernon; Barnard.

JUNIORS, 88.

SPECIALS.

*Armell, Lyle; Holton.
 *Bailey, George S.; Salina.
 *Burkholder, Clarence; McPherson.
 *Calkins, Delmare; Willis.
 *Cissell, Merrill; Chanute.
 *Daniels, Joe; Paola.
 *Clark, Harry E.; Lawrence.
 *Dierking, Clarence Henry; Alta Vista.
 *Dodderidge, Philip William; White City.
 *Flinn, John; Chanute.
 *Hill, Roland Vaughn; Lawrence.
 *Hower, Virgil; Salina.
 *Johnson, Bertha Blanche; Cambridge.
 *Keck, Kenneth; *Wapello, Iowa.*
 *Lichty, Warren; Morrill.
 *Longstreth, Vernon Guy; Colony.
 *Magers, H. Brady; Winchester.

*Malsed, John Arthur; Parsons.
 *Maroney, Frank; Attica.
 *Martin, Raymond E.; Winfield.
 *Minehouse, Lloyd E.; Kinsley.
 *Myers, Ralph M.; Alden.
 *Reed, Garnett; *Kansas City, Mo.*
 *Rice, Ivan William; Lawrence.
 *Rogers, Whitson; Wellington.
 *Rosecrans, Vincent; Winfield.
 *Rothrock, Ray; Wellington.
 *Shinn, Henry Arthur; Lawrence.
 *Smith, Wint; Mankato.
 *Voorhees, Claude H.; Lawrence.
 *White, Maceo; Arkansas City.
 *Wilson, Gail E.; Beloit.
 *Wilson, Webb; Horton.

SPECIALS, 33.

* Enrolled in another school of the University.

SCHOOL OF PHARMACY.

SENIORS.

FOUR-YEAR COURSE.

Howard, Roscoe David; Wellington. Patty, Frank Arthur; Lawrence.

THREE-YEAR COURSE.

Burton, Gladys; Abilene. Irvine, Joseph Louis; White Cloud.
Childs, Wesley McClung; El Dorado. Tyner, Orice Everette; Dighton.

TWO-YEAR COURSE.

Charles, Russell; Attica. McLaughlin, Kenneth Jay; Toronto.
Day, Gertrude; Greensburg. Paire, Leonard E.; Leavenworth.
Draper, William; Lawrence. Smith, Glen Ellsworth; Coffeyville.
James, Alvah William; Jewell. Thompson, Homer; Wichita.
King, Lee Travis; Manhattan. Wilcox, Roy Albert; Lawrence.
Lynn, Laurine Esther; Mankato. Wilson, Glen Elijah; Lawrence.
McCurry, Frank Wright; Peru.

SENIORS, 19.

JUNIORS.

FOUR-YEAR COURSE.

Bennett, Exxa Marie; Kingsdown. Rinehart, William Galeard; Lawrence.
Coons, Elsie May; Lawrence.

THREE-YEAR COURSE.

Hess, Benjamin Winfield; Lawrence. Williams, John Henry; Kansas City.

TWO-YEAR COURSE.

Adams, Geneva Boswell; Salina. Johnson, Emmett Russell; *Lone Oak, Tex.*
Berg, Thomas Philip; Syracuse. Kimerling, Roscoe E.; Glasco.
Binford, John Allen; Wellsville. Kutz, Charles Harold; Whitewater.
Dailey, Katie Ray; Douglass. Labarge, Leo; Clyde.
Dunns, Leo Patterson; Turon. Miller, Louise Franklin; Dodge City.
Farris, Ivan Leo; Norwich. Niederee, Walter Louis; Larned.
Fish, Earl Strasser; Sedan. Niehaus, Herman John; *St. Louis, Mo.*
Harris, Luther Thomas; Arkansas City. Olds, Gary; Winfield.
Hengesbach, Frank August; *St. Joseph, Mo.* Zimmerman, William Milton; Troy.
Jackson, Leta Mary; *St. Joseph, Mo.*

JUNIORS, 24.

SOPHOMORES.

FOUR-YEAR COURSE.

Jones, Chauncey Derrick; Kansas City.

THREE-YEAR COURSE.

Bell, Glen Everett; Attica. Kerr, Archibald Victor; Toronto.
Benson, Claude August; Bonner Springs. Poirier, Ferdinand Charles; Wathena.
Cooper, James Hiram; Kansas City. Roberts, Harold McKinley; La Harpe.
Copp, William Clifford; Kinsley. Seymour, Kathleen; Mound City.
Dearborn, Stena Helene; Greenleaf. Taylor, Robert Seawell; Kansas City.
French, Shelton; Kansas City. Wilson, Clarence; Lawrence.
Henry, Inez Ruth; Leoti.

SOPHOMORES, 14.

FRESHMEN.

FOUR-YEAR COURSE.

Bratt, Ramon Dean John; Russell. Vaughan, Frances Follett; Scott City.
Coutts, Iva Whitehead; El Dorado. Webber, Myrtle Christina; Morland.
Curren, Raymond Laverne; Burr Oak. Youngblood, Stafford Rufus; *Okla. City, Okla.*
German, Gretchen Elizabeth; Fulton.

FRESHMEN, 7.

SPECIALS.

Kammer, Fred Lloyd; Rosedale. Williams, Claude Francis; Leavenworth.

SPECIALS, 2.

SCHOOL OF MEDICINE.

SENIORS.

Cozier, Lawrence W.; Wakarusa.
Church, Harry Lester; Pittsburg.
Coffey, Frank Ellsworth; Kansas City.
Ferguson, Earl Ruben; Garnett.
Hadley, Ernest Elvin; Alton.
Hastings, Grant Ray; Kansas City.
Hertzler, Agnes Hancock; *Kan. City, Mo.*
Kehl, Charles Cyrus; Newton.
Malcolmson, Oliver Krause; *K. C., Mo.*
Marquis, George Slavens; *Colfax, Iowa.*
Mowery, Glenn Edsel; Scott.
Ogg, Francis Willard; Douglass.

Pace, John David; Parsons.
Patrick, Ruth; Randall.
Petterson, Edward Chester; Beloit.
Riste, Rose Alma; *Chopaka, Wash.*
Ruble, Mirl Calvin; Parsons.
Scholer, Henry Charles; Bonner Springs.
Stephens, Brooks Palmer; Kansas City.
Stivison, Roy Edward; Lyndon.
Sullivan, Henry Bradley; Langdon.
Thiele, George Henry; Washington.
Walter, Edmund Kurt; *Kansas City, Mo.*
Wolfe, James Edwin; Wichita.

SENIORS, 24.

JUNIORS.

Anderson, Forrest Nelson; Lawrence.
Beal, Homer; Topeka.
Bennie, Herbert Stewart; Almena.
Bixby, Benjamin Parker; McPherson.
Blount, Justin Alexander; Larned.
Burke, Esther Margaret; Lawrence.
Campbell, Robert Finley; Meade.
Cowles, George Edwin; Wichita.
Cox, Wilfred; Sharon Springs.
Dixon, Claude Frank; *Kansas City, Mo.*
Emerson, Ralph Waldo; Osborne.
Friesen, Herman Elmer; Hillsboro.
Gestrings, Hugh Arthur; Atwood.
Gray, Helen Emily; Paxico.
Hurwitz, Samuel; Rosedale.
Johnson, Henrietta W.; Beverly.

Kauffman, Hester Juanita; Rosedale.
Mott, James Mabbitt; Kansas City.
McEwen, Fred John; Iola.
McWilliams, Cline Vansandt; *Archie, Mo.*
Newman, Carl Sullivan; Dighton.
Owens, Guy Ebenezer; Topeka.
Rannie, Paul Ruml; *Independence, Mo.*
Sandidge, Allen Wilson; Mulberry.
Schoier, Charles Otto; Rosedale.
Stevens, Roy Ulysses; *Kansas City, Mo.*
Terrill, Harold James; Robinson.
Thiessen, Edward Herman; Beloit.
Walz, Thomas Julius; Kansas City.
Welker, Joseph Edward; Lawrence.
Weltmer, Wardie Wallace; *Kan. City, Mo.*
Wilson, Ivanhoe Fernando; Rosedale.

JUNIORS, 32.

SOPHOMORES.

Beery, Joseph Homer; Paola.
Bennett, Joseph Samuel; Lawrence.
*Bernstein, Julius; Lawrence.
Beyer, Martin Ralph; Lawrence.
Black, W. Byron; Lawrence.
*Coffey, Erval; Lawrence.
*Drury, Ray Cameron; Newton.
Eitzen, Abram Clement; Hillsboro.
*Ewing, Ruth Evelyn; Kansas City.
Fabiana, Teodoro Dagondon; *Phil. Islands.*
Fletcher, Louis R.; Scott City.
Grauerholz, James William; Kensington.
*Gempel, Paul August; Leavenworth.
*Hassig, Cecil Edwards; Kansas City.
*Helwig, Ferdinand Christian; Kan. City.
*Hereford, Melvin; Wichita.

Hershey, Noah Lincoln; Abilene.
Hoch, Frank Micheal; Wilson.
Johnson, Emsley Thomas; Lawrence.
*Joslin, Leeman C.; Bavaria.
Kellogg, Ernest Clinton; Lawrence.
Lenski, Frank; Pittsburg.
*Lutz, Elizabeth Jane; Holton.
*Renner, Marion John; Lawrence.
Seeberg, Abe; Lawrence.
*Sharp, Oscar; Pittsburg.
Sigrist, Frank August; Topeka.
Spicer, William Sidney; Lawrence.
Stephenson, Walter; Lawrence.
Sutton, Edgar Milton; Beloit.
*Webster, Paul R.; Larned.
*Willems, Leonard C.; Lansing.

SOPHOMORES, 32.

FRESHMEN.

*Auchard, Virgil Marion; Lawrence.
*Beiderwell, Earl R.; La Harpe.
*Blanke, Otto Theodore; Garden City.
*Boese, Adolph; Hillsboro.
Brown, Irwin Schilling; Lawrence.
*Carey, Walter Ray; Osage City.
*Casford, Ralph Shelton; Bird City.
*Chambers, Adelbert Royal; Tescott.
Cooke, Charles Harold; Wichita.
*Dewey, Charles Homer; Elk City.
Faris, Herve Samuel; Sterling.
*Forman, George William; Alton.
*Frick, John Paul; *Kansas City, Mo.*

*Goss, Clark Cleo; Harper.
Gurden, William David; Topeka.
*Harms, Herbert A.; Wichita.
Heathman, Lucy; Lawrence.
*Helman, Richard Graham; *Kan. City, Mo.*
*Hobbs, Russell Eugene; Wichita.
*Knight, Durell; Kansas City.
*Lee, Frank Nelson; Kansas City.
*Lee, George Raymond; Yates Center.
McCandless, Orville Calnon; Wichita.
*McIlhenny, Robert Campbell; Conway Springs.
McNaught, James Bernard; Girard.

* Enrolled in another school of the University.

FRESHMEN—concluded.

- | | |
|--|---|
| Newton, Clare Montgomery; Chetopa. | *Taylor, Edwin Moses; Hoxie. |
| Neylon, George Albert; Paola. | Towne, Ralph Leonard; Lawrence. |
| *Oglevie, Rial R.; Burr Oak. | Urie, Rolland William; Ramona. |
| *O'Donnell, John Edgar; Ellsworth. | Van Horn, Charles Duane; Topeka. |
| Pitman, Will D.; <i>Enid, Okla.</i> | Watson, George Nathaniel; Lawrence. |
| Ross, Gilson A.; Delphos. | Webster, Paul Reicherd; Larned. |
| Schneider, Chester Clarence; Great Bend. | West, Charles Omer; Lawrence. |
| Schnitzler, Fritz William; Wichita. | *Wilbur, Clifford Henry; Lawrence. |
| Stanley, George Bowman; Lawrence. | Willhelmy, Ellis Warner; Kansas City. |
| *Stephenson, Walter; Lawrence. | *Wineinger, William Wesley; Fort Scott. |

* Enrolled in another school of the University.

FRESHMEN, 45.

SCHOOL OF NURSING.

CLASS OF 1920.

Bunger, Frances May; Alta Vista.
 Hunter, Ruthogene Marcia; *Geneseo, Ill.*
 Koken, Maude; *Long Beach, Cal.*
 McDaniels, Anabel.

Miller, Luella; Norcatur.
 Tarr, Grace Edna; Summerfield.
 Unruh, Della Sophie; Larned.
 Weber, Hilda.

CLASS OF 1921.

Bauerfind, Neva; Minneapolis.
 Beeson, Oma; Natoma.
 Cook, Ola Rae; Stockton.
 Hendrickson, Lenore Ethel; Columbus.
 Jones, Mabel Bell; Altamont.
 Louneke, Grace Estella; Arkansas City.

Main, Emily; Arkansas City.
 Rearick, Isabelle; *Aurora, Mo.*
 Reed, Gladys Irene; Arkansas City.
 Turner, Rachael Marie; Rosedale.
 Veatch, Louise Laura; Kansas City.
 Winn, Dorothy; *Kansas City, Mo.*

CLASS OF 1922.

Fonts, Honor Olive; *Naponce, Neb.*
 Hickey, Ada.
 Hunter, Icel; *Geneseo, Ill.*
 Line, Helen Theresa; Pittsburg.

Miller, Maude; Rosedale.
 Smith, Effie Juanita; *Gillett, Ark.*
 Stephens, Etta Maurine; Columbus.
 Yoxall, Elizabeth Alice; Stockton.

NURSES, 28.

SCHOOL OF EDUCATION.

GRADUATES.

- * Auchard, Ralph Emerson; Clay Center.
- * Alsop, Inez; *Tipton, Iowa.*
- * Bromwell, George Daniel; Kansas City.
- * Brown, William Fayette; Lawrence.
- * Butler, Leota Rae; Winfield.
- * Buck, Helen Elizabeth; Lawrence.
- * Chandler, John Roscoe; Eskridge.
- * Gidinghagen, Myrtle Rosalie; *Kan. City, Mo.*
- * Greenwood, Grace Ellen; *Carthage, Mo.*
- * Herron, Allen Murray; Eureka.
- * Holloway, Richard Black; Lawrence.
- * Hoover, John Heyner; Lawrence.
- * Jevons, Beulah Helen; Wakefield.
- * Kraus, Harry E.; *St. Regis, Mont.*
- * Magnusson, Amanda; Lindsborg.
- * Mellenbruck, Pearl Leslie; Lawrence.
- * Pearson, Warren; White City.
- * Pollard, James Hybert; Lawrence.
- * Robertson, Minnie Moody; Lawrence.
- * Sikes, Erie Brainerd; Kiowa.
- * Somermier, Eloise Cornelia; Winfield.
- * Starrett, Ellis S.; Norton.
- * Strain, Helen; Clyde.
- * Taylor, Dora Irene; Lawrence.
- * Thompson, William R.; Halstead.
- * Twente, John Wesley; Baxter Springs.
- * Wilson, Elizabeth K.; *Kansas City, Mo.*

GRADUATES, 27.

SENIORS.

- * Akright, James Gladstone; Lawrence.
- * Alexander, Jennie Angeline; Garnett.
- * Allen, Earline; *LaCygne.*
- * Alter, Mrs. Ada M.; Lawrence.
- * Ames, Clarinda Josephine; Concordia.
- * Anderson, Mary Elizabeth; Alma.
- * Anderson, Tyson Virgil; Partridge.
- * Armstrong, Wallace Bruce; *Kan. City, Mo.*
- * Beeler, Nellie Eleanora; Mankato.
- * Bender, Helen Frances; *Okla. City, Okla.*
- * Bernhard, Alice Virginia; Lawrence.
- * Boyles, Ruth Irene; Lawrence.
- * Branson, Mary Louise; Eureka.
- * Broeker, Louise Marie; Lawrence.
- * Brown, Karl; Lawrence.
- * Brown, Margaret Elizabeth; Lawrence.
- * Bruckmiller, Elfrida Ottilla; *Kan. City, Mo.*
- * Burt, Rita; Leavenworth.
- * Caffrey, June Helen; Mount Hope.
- * Calkins, Franklin Delmare; Willis.
- * Campbell, Lida; Meade.
- * Church, Romulus Bruce; Pittsburg.
- * Cook, Ellen Geneva; Lawrence.
- * Cooper, Lloyd Frank; Hoxie.
- * Cottrell, Lillian Fern; Irving.
- * Craig, Jessie Emma; Nortonville.
- * Dawson, Dorothy; Great Bend.
- * Decker, Margaret Helen; Oskaloosa.
- * Deets, Mildred McClain; *Okla. City, Okla.*
- * Dill, Mrs. Emma G.; Lawrence.
- * Drake, Gladys Edith; Lawrence.
- * Edgar, Anne Lucille; Lawrence.
- * Emmons, Fern Ora; Manhattan.
- * Farrell, Margaret Elizabeth; Clay Center.
- * Fish, Lillian V.; Lawrence.
- * Fogarty, Angela; Lawrence.
- * Forbes, Helen Marguerite; Concordia.
- * Frazier, Irma Gilberta; Kansas City.
- * Frisbie, Edith Adelaide; Bonner Springs.
- * Fugate, Annette Keller; Lawrence.
- * Gerhold, Ella Mae; Greeley.
- * Gibbons, Clara Marie; Topeka.
- * Gilmore, Mildred Lucile; Lawrence.
- * Glasco, Maude Eleanor; Lawrence.
- * Grossenbacher, Margaret; Bern.
- * Gunn, Nellie Edna; Great Bend.
- * Hagen, Beatrice Liberty; Ellinwood.
- * Hagen, Ella Jane; Ellinwood.
- * Hagen, Maude Barbara; Ellinwood.
- * Hart, Helen; Bonner Springs.
- * Hawes, Virginia Anna; Lawrence.
- * Hay, Louis; Eskridge.
- * Hays, Claude Arthur; Lawrence.
- * Hopkins, Vivian Erdene; Kansas City.
- * Hornaday, Florence Caroline; *Udell, Iowa.*
- * Horton, Gilberta Helen; McPherson.
- * Hudson, Marjorie; Fredonia.
- * Hunt, Mary Lois; Conway Springs.
- * Jordan, Mayme Geraldine; Glasco.
- * Kelsey, Ruth; Jewell.
- * Kirkpatrick, Ramona Elizabeth; Topeka.
- * Klepinger, Myrl Marie; Rosedale.
- * Knott, Florence; De Soto.
- * Kohman, Frances Miriam; Dillon.
- * Lockwood, Patricia; St. Francis.
- * Long, Henry Johnson; *Cashion, Okla.*
- * Matthews, Violet Eugenia; Topeka.
- * Melvin, Virginia Miriam; Lawrence.
- * Messing, Alma; Ashland.
- * Metsker, Sonora Tulena; Lawrence.
- * Montgomery, George A.; Mankato.
- * Moren, Dorothy Celia; Lawrence.
- * Morrison, Etna Frances; Newton.
- * McBratney, Nellie Evelyn; Centralia.
- * McCullough, Anna Marie; Paola.
- * Naismith, Hellen Caroline; Lawrence.
- * Nelson, Ellen Eustina; Manhattan.
- * Nixon, Mabel; Lawrence.
- * Noah, Lucille Allen; Hutchinson.
- * Osborne, Harriet Corrinne; Wichita.
- * Owens, Seth Jenkins; Effingham.
- * Patterson, Blanche Lynn; Lawrence.
- * Patterson, Elsie Fay; Abilene.
- * Perkins, Alice Louise; Kansas City.
- * Perkins, Alice Minerva; Howard.
- * Perry, Evangeline; *Albuquerque, N. Mex.*
- * Peters, Hazel Arissa; Lawrence.
- * Peterson, John Oscar; Assaria.
- * Pittman, Clara Amanda; Liberal.
- * Power, Marie Emily; Lawrence.
- * Price, Hazel B.; McLouth.
- * Raugh, Hazel Marie; *Savannah, Mo.*
- * Reed, Katherine Marie; Lawrence.
- * Riggs, Hazel May; Lawrence.
- * Riley, Ray Jeannette; Lawrence.
- * Robb, Helen Irene; Clay Center.
- * Robertson, Blanche E.; *Kansas City, Mo.*
- * Robertson, Katharine Vina; *Kan. City, Mo.*

* Enrolled in another school of the University.

SENIORS—concluded.

- *Rodkey, Ralph Darwin; Blue Rapids.
- *Ross, Wanda May; *Oklahoma City, Okla.*
- *Russell, Iris; Kansas City.
- *Sallee, Flora Myrtle; Hutchinson.
- *Samson, Mary Henrietta; Topeka.
- *Schick, Fern; Lawrence.
- *Schweizer, Hortence; Wichita.
- Scott, Elsie Ora; St. John.
- *Scott, Eva Mabel; Solomon.
- *Semon, Florence Margaret; Lawrence.
- *Smith, Bert C.; Pawnee Rock.
- *Smith, Erma Anita; Sharon.
- *Smith, Meda Estella; Paola.
- *Spencer, Ray Paul; Lawrence.
- *Staley, Kathryn Elizabeth; Richmond.
- *Statler, Katherine C.; Strong City.
- *Steininger, Edith; Chapman.
- *Stevenson, Wayne Bernice; Lawrence.
- *Swanson, Lillian Victoria; Marquette.
- *Sweigart, Gladys Naomi; Kansas City.
- *Taylor, James Ross; Oskaloosa.
- *Thompson, Robert Armida; Lawrence.
- *Thompson, Marna; *Kansas City, Mo.*
- *Trant, Ruth Mary; Edwardsville.
- *Traul, Ruth Irene; La Cygne.
- *Underwood, Fay; Lawrence.
- *Vail, Helen Robison; *St. Joseph, Mo.*
- *VanSandt, Eileen Marguerite; Chanute.
- *Vermillion, Una; Tescott.
- *Walters, Velma Mary; Wakefield.
- *Ward, Winifred Emily; Lawrence.
- *Watkins, Mary Elizabeth; *St. John, Mo.*
- *Watson, Bertha; Minneapolis.
- *Watt, Evelina; Ellsworth.
- Wedell, Emily; Lawrence.
- *Wingate, Marguerite Perkins; Lawrence.
- *Yeater, Georgia Rains; Lawrence.

SENIORS, 135.

JUNIORS.

- *Anderson, Edna Louise; Lawrence.
- *Armel, Dorothy Jeanette; Humboldt.
- *Atkinson, Janet; Lawrence.
- *Bagby, Grace; Lawrence.
- *Battersby, Editha; Kansas City.
- *Baum, Theresa Rosa; Galena.
- *Beal, Beatrice Sadie; Hamilton.
- *Beck, Ruth; Lawrence.
- Bermejo, Fernando V.; *Philippine Islands.*
- *Beyer, Lilah Flo; Arlington.
- *Blackburn, Glessie; Stafford.
- *Beakley, Georgina; Lawrence.
- *Bowman, Mrs. Earl M.; Lawrence.
- *Breitag, Emma M.; *Kansas City, Mo.*
- *Brown, Marie Alberta; Lawrence.
- Burgert, Alice; Lawrence.
- *Bush, Hattie; Lawrence.
- *Bushnell, Hilda Corinne; Mound Valley.
- *Carlgen, Florence; Concordia.
- *Carlin, Helen Margaret; Salina.
- *Case, Goldie Ruth; Arkansas City.
- *Case, Naomi Marie; Arkansas City.
- *Chaplin, Gladys Albertina; Edgerton.
- *Christoff, Minnie; Kansas City.
- *Clark, Ethel C.; Mankato.
- *Cooper, Lloyd Frank; Hoxie.
- Copeland, Helen; Quenemo.
- *Crim, Virginia Dickinson; Lawrence.
- Davis, Jeannette; *Kansas City, Mo.*
- *Davis, Kathleen; Lawrence.
- *Davis, Ruth; *Kansas City, Mo.*
- *Decker, Margaret Helen; Oskaloosa.
- *Eytchison, Vivian Belle; Onaga.
- *Faulders, Faith A.; El Dorado.
- *Firestone, Maurine Estelle; Wichita.
- *Fish, Lillian V.; Lawrence.
- *Fitzgerald, Julia Marcella; Jamestown.
- Fixley, Everett Hayes; *Whitewright, Tex.*
- *Flynn, Frances Helene; Humboldt.
- *Foley, Catherine Mary; *Kansas City, Mo.*
- *Foster, Mildred T.; *Blackwell, Ohio.*
- *Fox, Lenore Sarah; Greeley.
- *Fugate, Josephine; Lawrence.
- *Gaskill, Grace; Lawrence.
- *Gillis, Bessie Beatrice; Garnett.
- *Gottlieb, Ferdinand; Pleasanton.
- *Griffith, William Henry; Pratt.
- *Grimsley, Bernice; Burlington.
- *Grossenbacher, Margaret; Bern.
- Gunn, Everett; Nickerson.
- *Haelsig, Otto Herman; Eudora.
- *Hawkins, Mary Beatrice; *Lamar, Mo.*
- *Hayslip, Elizabeth Elimina; Bethel.
- *Heron, William Thomas; Burns.
- Hiatt, May Farr; *Kansas City, Mo.*
- *Holmberg, Corinne; Peabody.
- *Hubbard, Lena Irene; Minneapolis.
- *Humphrey, Anita; Lawrence.
- *Ishmael, Marjorie Ellen; Kiowa.
- *Jewett, John Mark; De Soto.
- *Jordan, Gladys Delores; Glasco.
- *Kennedy, Winifred Frances; Lawrence.
- *Lacy, Blanche Mary; Anthony.
- *Long, Gladys; *Kansas City, Mo.*
- *MacGregor, Gladys; Medicine Lodge.
- *Merriitt, Florence Maude; Lawrence.
- *Miller, Blanche Helen; Lawrence.
- *Miller, Helen Blanche; Lawrence.
- *Miller, Louisa; Iola.
- *Minger, Ethel Louise; Bern.
- *Montgomery, Hazel Ruth; *Kan. City, Mo.*
- *Morgan, Jane; *Kansas City, Mo.*
- *Morgan, Muzelle; *Kansas City, Mo.*
- *McFadden, Norma; *Nevada, Mo.*
- *McGuffey, Alice W.; Lawrence.
- *McKinney, Marie Murr; Hoxie.
- *Nelson, Marguerite Isabel; *Oklahoma City, Okla.*
- *Nettels, Curtis Putnam; Topeka.
- *Olsen, Mary Carolyn; Lawrence.
- *Pelton, Clara Alice; Caldwell.
- *Petteys, Iona; Newton.
- *Pounds, Donna Vivian; Coldwater.
- *Pyle, Mary; Lawrence.
- *Quinn, Katherine Grace; McPherson.
- *Ramsey, Mary Elna; Independence.
- *Rhodes, Pauline Ann; Lawrence.
- *Rice, Anita Bertha; Lawrence.
- *Rising, Edna Rose; Lawrence.
- *Robinson, Cecelia Margaret; Potter.
- *Sadler, May Irene; *Kansas City, Mo.*
- *Schafer, Sidonie Pauline; McPherson.
- *Schumann, Margaretha; Lawrence.
- *Schweizer, Paulena; Wichita.
- *Scott, Anna Louise; Burlington.
- *Shafer, Jeannette; Colby.
- *Shaklee, Marie Elsie; *Waukomis, Okla.*
- *Silver, Helen Rachel; Morganville.
- *Smith, Bessie; Pratt.
- *Smith, Zuma Zeda; Kansas City.
- *Songer, Irene Maud; *Kansas City, Mo.*
- *Stauffer, Nina Aldeau; Randall.
- *Steininger, Vera Margaret; *St. Joe, Mo.*
- *Strand, Lillie Olivia; Independence.
- *Syser, Ruth Isabelle; Hiawatha.
- *Thompson, Helen Louise; *Kan. City, Mo.*
- *Tiemann, Frieda Eulalia; Ellinwood.

* Enrolled in another school of the University.

JUNIORS—continued.

- *Tummel, Theresa; Lawrence.
- *Weibel, Nadene; Lawrence.
- *Wenzel, Anna Marie; H.

- *Williams, Harriett Leah; Preston.
- *Woodward, George J.; Lawrence.

JUNIORS, 111.

SPECIALS.

- *Adams, Merle Louise; Lebanon.
- *Allen, Cleo Marie; Lawrence.
- *Allen, Frances; Lawrence.
- *Anderson, Mabel; Vesper.
- *Ashlock, Dot; De Soto.
- *Atwood, Marguerite; Caney.
- *Ayers, Marian; Wamego.
- *Brophy, Athol; *Kansas City, Mo.*
- *Burkey, Ruth; Arkansas City.
- *Buskirk, John Raymond; El Dorado.
- *Case, Maggie J.; *Blackwell, Okla.*
- *Casey, Marian E.; Atchison.
- *Cavanaugh, Ruth Lois; Dighton.
- *Chapman, Doris; Conway Springs.
- *Chase, Florence Lucy; Shawnee.
- *Claggett, Dola Gladys; Atchison.
- *Clark, Amy B.; Mankato.
- *Clarke, Mildred M.; Osawatomie.
- *Clarke, Jean; La Cygne.
- *Converse, Helen Ruth; Altoona.
- *Crump, Leah Emma; Kansas City.
- *Cunningham, William Wells; Denton.
- *Firebaugh, Lena; St. John.
- *Fisher, Marguerite; Caney.
- *Fulks, Josephine; Turon.
- *Gafney, Ray E.; Winfield.
- *Geiger, Alice Louise; Brookville.
- *Geiger, Lucy Marie; Brookville.
- *Gott, Henry Vivien; Bronson.
- *Haggart, Maria Jane; Lawrence.
- *Hart, Marie; Macksville.
- *Hershberger, Crystal L.; Greensburg.

- *Johnston, Cozette; Eureka.
- *Keeler, Delia Meda; Scottsville.
- *King, Etta Marie; *Shawnee, Okla.*
- *Krumstick, Victoria; Paola.
- *Krumstick, Wilhelmina; Paola.
- *Lacy, Pearl Hazel; Anthony.
- *Lasure, Mildred Pearl; Russell.
- *Lightner, Verna Elaine; Mound City.
- *Lynn, Hazel Eugene; *Kansas City, Mo.*
- *Mayer, Minnie; Junction City.
- *McBride, Rheva; Onaga.
- *McDougal, Vida L.; Lawrence.
- *McGrath, Margaret Anne; Waverly.
- *Neely, Vera M.; Lawrence.
- *Novel, Doria Reita; Rosedale.
- *Orelup, Faye; Lawrence.
- *Patterson, Doris K.; Lawrence.
- *Pounds, Mildred; *Joplin, Mo.*
- *Richter, Minnie W.; Garden City.
- *Riley, Frances; Soldier.
- *Romig, Phoebe Ruth; Topeka.
- *Sacher, Ruth H.; Holton.
- *Sawyer, Eva Marie; *Westboro, Mo.*
- *Schindler, Charlotte; Valley Falls.
- *Scott, Hazel Louise; Garnett.
- *Seeley, Oreta Marie; Norton.
- *Sewell, Gladys; Elk City.
- *Shafer, Josephine; Colby.
- *Stephens, Isabel; Atchison.
- *Tucker, Winslow Marjorie; Lawrence.
- *Tudor, Mary Margaret; Holton.
- *Wilson, Margaret; Meade.

* Enrolled in another school of the University.

SPECIALS, 64.

SUMMER SESSION, 1919.

- Alder, Mary Louise; Lawrence.
Physiology, Neurology.
- *Alexander, Angeline Jennie; Garnett.
History, Sociology.
- *Alford, David Robert; Leavenworth.
Economics, Sociology, History.
- *Allen, Cleo Marie; Lawrence.
Zoölogy, English.
- Allen, Paul V.; *Pharr, Tex.*
Chemistry.
- *Alsop, Inez; Wakefield.
Education.
- Anderson, Amy Marie; Iola.
Physiology, Botany.
- Anderson, Arthur S.; Lawrence.
Physiology.
- Anderson, Bessie, *Chillicothe, Mo.*
Spanish, Public Speaking, Education.
- Anderson, Essie Jane; Lawrence.
Home Economics, Education.
- Anderson, Gladys C. M.; Lawrence.
Education, Public Speaking.
- *Anderson, Mary E.; Alma.
Education.
- Anderson, Ruth A.; *Independence, Mo.*
Home Economics, Psychology.
- Anderson, M. Zella; Lawrence.
Education.
- Andrews, Mary E.; Powhattan.
Journalism, Music.
- Arnett, Ila Maud; Lawrence.
Spanish.
- Atkinson, Eleanor Frances; Lawrence.
Education, Sociology.
- Atwood, Carrie; *Liberty, Mo.*
English, History.
- Babb, Alvin L.; Lawrence.
Economics, Education,
Physical Education.
- Baldwin, Katrina; *Kansas City, Mo.*
Education.
- Bales, Elsie R.; Lawrence.
Education, English.
- *Banker, Martha T.; *Tahlequah, Okla.*
Journalism, Sociology.
- Barbee, Frederick H.; *Kansas City, Mo.*
Education.
- Barber, Fred Hayes; Macksville.
Education.
- Barnes, Nellie; Lawrence.
English.
- *Barney, Nellie Mabel; Seneca.
History, English, Economics.
- *Battersby, Editha; *Kansas City, Mo.*
Zoölogy, Sociology, English.
- *Baumgartner, Leona; Lawrence.
Music.
- Bayles, Ernest Edward; Salina.
Education.
- Beal, Homer A.; Topeka.
Physiology.
- Beard, Roy J.; *Fort Worth, Tex.*
Economics, Journalism.
- Beatty, Cora B.; Frankfort.
Spanish, Home Economics.
- Beatty, Florence M.; Frankfort.
French.
- *Beck, Ruth; Lawrence.
Psychology, English.
- *Bedell, C. O.; Lebo.
Chemistry.
- Beiderwell, Mrs. S. F.; La Harpe.
Education.
- Belding, Mrs. Florence K.; Pleasanton.
English, Latin.
- Bell, Laura Ellen; Kansas City.
Public Speaking.
- Bell, Ruth E.; Sterling.
English.
- *Beltz, Willis, Nickerson.
Chemistry, Mathematics.
- Bennett, Charles Alvin; Eskridge.
Zoölogy.
- *Bennett, Joseph S.; *Independence, Mo.*
Chemistry, Anatomy.
- *Bentley, Leslie Robert; Lawrence.
Economics, Sociology.
- Bentley, Ruth; Lawrence.
Music, Physical Education, Education.
- Bereman, William Everett; Nickerson.
Economics, Philosophy.
- *Bernhard, Alice V.; Lawrence.
English.
- *Beyer, Lilah Flo; Arrington.
Chemistry, Zoölogy.
- Bishop, Olive; Dodge City.
Education, Botany.
- Black, John L.; Belleville.
Physics.
- *Black, W. B.; Lawrence.
Physiology, Chemistry.
- *Elair, Bernice Garnett; *Belton, Mo.*
Music, French.
- Blair, Nadine; *Belton, Mo.*
Public Speaking, Economics, Education.
- Blake, Elizabeth; Winfield.
English, History, Zoölogy.
- Blanpied, C. C.; Lawrence.
Chemistry.
- Blasdel, Emert Harry; Hutchinson.
Anatomy.
- *Bliss, Florence; Lawrence.
Entomology, Zoölogy.
- *Boerstler, Mrs. Ruth; Lawrence.
Music.
- Bookwalter, Lulu Gertrude; Kansas City.
Education.
- Bottomly, Ruth Esther; Lawrence.
Bacteriology.
- *Boughton, Ruth; Lawrence.
Chemistry, Economics.
- Bourne, Fern May; Winchester.
English, Home Economics.
- Bowen, Charles Grafton; Independence.
English, Sociology, Mathematics.
- *Bowersock, Lawrence H.; Lawrence.
Economics, French.
- *Bown, William Forest; Lawrence.
Chemistry.
- Boyd, Bertha; Spearville.
Education.
- Boylan, Margaret Manora; Lawrence.
English.
- *Boyles, Ruth Irene; Lawrence.
Mathematics, Education, Chemistry.
- *Brady, Agnes Marie; Lawrence.
Spanish.
- Brewer, Bertha Ethelyn; Formoso.
Mathematics.
- Bridgens, Bernice; Kansas City.
Education.

SUMMER SESSION, 1919—continued.

- Brown, Elizabeth Tenaxi; Emporia.
Chemistry, Education.
- Brown, Eva; Wakeeney.
Music, Physics, Education.
- Brown, Geraldine; *Kansas City, Mo.*
Home Economics.
- Brown, Helen E.; Delphos.
Education.
- Brown, J. Prescott; *Kansas City, Mo.*
Law.
- Brown, Karl; Lawrence.
Education, English.
- *Brown, Margaret Elizabeth; Lawrence.
Zoölogy, Sociology.
- Brown, Ravena E.; Lawrence.
Economics, History, Education.
- Brown, Rice E.; Emporia.
Education.
- *Brown, William Fayette; Caldwell.
Education.
- *Bryan, W. Leigh; Lawrence.
Chemistry, French.
- *Bunn, John William; Humboldt.
Physics.
- *Burgert, Eran Omer; Lawrence.
Mathematics, Physics.
- *Burke, Lois Louise; Lawrence.
Journalism, Sociology.
- *Burnett, Lois; Linwood.
Zoölogy.
- *Burt, Rita; Leavenworth.
Education, History, Economics.
- *Butcher, Fred D.; Lawrence.
Entomology.
- Button, Dorothy; Burrton.
Education.
- *Cajucorn, Jose V.; *Manila, P. I.*
English.
- *Calkins, Anna L.; Willis.
History, Sociology.
- *Calkins, Delmare Franklin; Willis.
Economics, History, Sociology,
Philosophy.
- Campbell, Robert F.; Meade.
Anatomy.
- Cantrell, Charline; Lawrence.
Music.
- Cantrell, Geneva; Lawrence.
Music.
- Cantrell, Margaret; Lawrence.
Music.
- *Carder, Lorane; Lawrence.
Music.
- *Carman, J. Neale; Lawrence.
French, English.
- Carman, Maybelle Gordon; Lawrence.
English, Spanish, Latin.
- *Carney, Mary Florence; Lawrence.
Music.
- Carpenter, Garnet E.; Lawrence.
Economics, Education.
- Cary, Frances D.; *Hamilton, Mo.*
History, Education.
- *Cary, William Tracy; *Arkansas City.*
Geology.
- Catlin, Florence A.; Leavenworth.
Education.
- *Chambers, Adelbert Royal; Tescott.
Physics.
- Chambers, Benjamin Franklin; *K. C., Mo.*
Sociology, Education.
- *Chambers, Helen L.; Lawrence.
Sociology.
- *Chandler, J. R.; Iola.
Zoölogy, Education.
- *Chesky, Frank Herbert; Wichita.
History, Economics.
- *Church, Basil Thomas; Lawrence.
Sociology, English.
- *Cissell, Merrill A.; Chanute.
History, Sociology.
- *Clark, John Baptist; Lawrence.
Chemistry, English, Mathematics.
- *Cline, Glenn William; Fort Scott.
Mathematics, Sociology, Physics.
- *Clingman, Talbot F.; Lawrence.
History, Journalism.
- *Coffey, Erval; Lawrence.
Chemistry, Anatomy.
- Conley, Minnie Avis; Long Island.
Education, History.
- Conner, David Ewing; Lawrence.
Journalism, History, Spanish, English,
Zoölogy.
- *Constant, Corinne; Lawrence.
Mathematics, French.
- *Constant, Olive Jane; Lawrence.
Music.
- *Cook, Bernice; Lawrence.
Mathematics, French.
- *Cook, Ellen Geneva; Lawrence.
Home Economics.
- *Cook, Hazel Myrtle; Lawrence.
Music.
- Cook, John LaVerne; Concordia.
Education, Physical Education.
- *Cook, Julius Edgar; Lawrence.
Spanish, History, English.
- *Cooksey, Warren B.; Lawrence.
Sociology, English.
- Cooper, Esther M.; *Kansas City.*
Sociology, Education.
- *Cooper, Lloyd Frank; Hoxie.
Philosophy, Zoölogy, Anatomy.
- Corn, Laura E.; Humboldt.
Economics, French, Sociology.
- Corning, Myra M.; Topeka.
English, History.
- Covey, Mabel; Rosedale.
Psychology, Drawing.
- *Craig, Jessie Emma; Nortonville.
Physics.
- Crawford, Agnes; Girard.
Spanish.
- *Cress, Howard R.; Clements.
Geology.
- Crim, Adele M.; Lawrence.
Economics, Home Economics,
Education.
- Croan, Mrs. Maudine; Garnett.
Economics, Education.
- Croan, Melvin; Garnett.
Education.
- Crotty, Morgan Henrietta; Pittsburg.
Latin.
- Curl, Grace; Lawrence.
Home Economics, English, Zoölogy.
- *Daniels, Joe E.; Paola.
Economics, English.
- Darland, Ruth; Columbus.
Public Speaking.
- Davenport, Eleanore; Ottawa.
Latin, Mathematics.
- Davis, Ethel M.; Wichita.
French, Latin.
- Davis, Martena; Garnett.
Economics, English.
- *Davis, Vista Kathleen; Lawrence.
Sociology, Journalism, Music.
- *Dawson, Dorothy; Great Bend.
Spanish.
- Dealey, Mrs. Marie; Lawrence.
Music.
- Decker, Albert Irven; Fredonia.
Education, Sociology.
- DeForest, Alice M.; Lawrence.
Music.

* Also in current session.

SUMMER SESSION, 1919—continued.

- *Deibert, Olin; Lawrence.
Medicine.
- DeLay, Glenn A.; Syracuse.
Education, Sociology.
- *Derge, Dorothy; Lebanon.
Public Speaking, French, Philosophy.
- *DeTar, Burleigh E.; *Miami, Okla.*
Physics.
- Devereux, James Marks; Weir.
Anatomy.
- DeWitt, Helen Wright; Lawrence.
Education, Home Economics.
- Dey, Mary S.; Wellington.
English, Psychology.
- *Dick, Adelaide C.; Lawrence.
History, Education.
- Dickerman, Daisy H.; Oswego.
Education, Latin.
- *Dickson, Jack; Lawrence.
Spanish, Music.
- *Dill, Emma G.; Lawrence.
Education, English.
- *Dill, Mrs. Jennie W.; Lawrence.
Home Economics.
- *Dilley, Charles A.; Alta Vista.
Chemistry, Mathematics, Philosophy.
- *Dillon, Clyde W.; Anthony.
Chemistry.
- *Diver, Robert Warren; Humboldt.
English, Zoölogy.
- *Douthitt, Bessie Price; Lawrence.
Zoölogy.
- *Downs, Cora M.; Lawrence.
Anatomy, Bacteriology.
- Doyle, Gertrude; Kansas City.
Education.
- *Drake, Gladys Edith; Lawrence.
Education.
- *Drury, Ray; Lawrence.
Chemistry, Mathematics, Philosophy.
- Duncan, Elizabeth; Lawrence.
Music.
- Dunn, Edna; LeLoup.
Education, History.
- Dyche, Axtell George; Lawrence.
Zoölogy, Entomology.
- *Eagles, Homer Moore; Thayer.
Geology.
- *Eaton, Mark M.; Erie.
Journalism, Public Speaking, English,
Economics.
- Ebeling, Murtle H.; Severance.
English, Spanish.
- *Edgar, Lucille; Lawrence.
Entomology, Zoölogy.
- *Elliott, Dempsey Walter; Lawrence.
History.
- Elliott, Edward Arthur; Waverly.
Education, Sociology.
- Else, Caryl L.; Lawrence.
Music.
- *Emberton, Odie D.; Lawrence.
Chemistry.
- *Embrey, Virginia; Lawrence.
Music, Drawing.
- Estes, Grace B.; *Kansas City, Mo.*
Education, Spanish.
- Etzenhauser, M. A.; Kansas City.
Sociology, Education.
- Evans, Benjamin E.; Sterling.
Chemistry.
- Evans, Florence; Salina.
Drawing, Education.
- *Evans, Leo; Kansas City.
French, Zoölogy.
- *Evans, Nellie Reese; Lawrence.
Home Economics.
- Ewald, Mark; Lawrence.
Anatomy, Philosophy, Sociology.
- *Ewing, Evelyn Ruth; Kansas City.
Bacteriology.
- *Fabiania, Theodore D.; *Misamis, P. I.*
Chemistry.
- Fanning, Anna S.; Waverly.
Education, Psychology.
- *Faris, Hervey S.; Sterling.
Zoölogy.
- Farris, Oscar R.; Minneapolis.
Education, Sociology.
- *Ferris, Florence Evelyn; Lawrence.
Zoölogy.
- Fite, William Arthur; *Kansas City, Mo.*
Education, History, Economics,
Philosophy.
- *Fitzgerald, E. J.; Lawrence.
Chemistry.
- Fleming, John Allen; Sedan.
Education.
- Floyd, Lucille; Kansas City.
Education, Sociology.
- Forbes, Helen; Concordia.
History, Entomology.
- Ford, Creola; *Excelsior Springs, Mo.*
Music.
- *Ford, William Virgil; Lawrence.
Mathematics, English.
- Foster, Cornelius; Waverly.
Education, Sociology.
- *Foster, Lewis Chandler; *Carthage, Mo.*
Chemistry, Physiology.
- Foster, Nelle; Olathe.
Public Speaking, Physical Education.
- *Frazier, Irma Gilberta; Kansas City.
Spanish, Education.
- Freeburg, Signe Marie; McPherson.
Drawing, Education.
- *Frick, John Paul; *Kansas City, Mo.*
Chemistry.
- Friend, Helen; Lawrence.
French.
- *Frisbie, Edith A.; Bonner Springs.
Home Economics, Education.
- Frisbie, Helen G.; Grantville.
French, English, Education.
- Fronk, Mary Rosa; Meriden.
Sociology, Mathematics.
- *Fugate, Annette Keller; Lawrence.
Economics, Mathematics.
- Fugate, Josephine; Lawrence.
Economics, Drawing.
- Gall, Gladys Elizabeth; Spring Hill.
Home Economics, Education.
- *Garrett, Bertha Madge; Lawrence.
Music.
- Garwood, Doris; Lawrence.
Music.
- Garwood, Dorothy; Lawrence.
Music.
- *Gauger, Olive; Lawrence.
Music.
- *Gauger, Verdilla; Lawrence.
Painting, Entomology.
- *Gempel, Paul A.; Leavenworth.
Chemistry.
- Gerhart, Myrtle L.; *Kansas City, Mo.*
Psychology, Education, Economics,
Philosophy.
- Gilkeson, Murray Mack; Burlingame.
Mathematics, Education, Economics.
- Gill, Eva M.; Lawrence.
Education, Home Economics,
Philosophy.
- *Gleed, Joanna; Topeka.
Music.

SUMMER SESSION, 1919—continued.

- Gleissner, Lillian; Topeka.
Mathematics, Education.
- *Glick, Perry A.; *Hamilton, Mo.*
Entomology.
- Godding, Frank Eugene; Lawrence.
Education, English.
- Godman, Mark; Lawrence.
Education.
- *Gorrill, Clarence Marshall; Lawrence.
Law.
- *Gorrill, Galen A.; Lawrence.
Geology.
- *Gottlieb, Ferdinand; Pleasanton.
Chemistry, Sociology, English.
- *Gould, Edythe Esther; Lawrence.
Botany, History, Sociology,
Philosophy.
- Gould, Gladys Ethel; Lawrence.
Botany, Journalism.
- Govier, Helen Elizabeth; *Kan. City, Mo.*
Chemistry.
- *Grauerholz, James William; Kensington.
Chemistry, Histology.
- Granger, Esmer; Topeka.
Philosophy, Sociology.
- Grassley, Edith J.; *Independence, Mo.*
Economics, History.
- Gray, Helen E.; Paxico.
Physiology.
- *Greider, Ruth Margaret; Topeka.
Chemistry.
- Green, Edna Faye; Wichita.
Latin, History.
- Greig, Anne Elizabeth; *Van Buren, Ark.*
Home Economics.
- *Gress, Roy K.; Lecompton.
History.
- Griffin, Beulah; Clearwater.
Music.
- *Gumbiner, Helen Ruth; Lawrence.
Sociology, English.
- *Gunn, Nellie; Great Bend.
Spanish, Education.
- *Hackman, Lucy; Lawrence.
Entomology.
- Hadley, J. Wilbur; Coldwater.
Education.
- *Haines, LaFayette; Galena.
Economics, English.
- Hale, Earle Cadwell; Lawrence.
History, Sociology, Philosophy.
- *Hall, Harold R.; Pratt.
Sociology, Psychology, Economics.
- *Hall, Royal Glen; *Parkville, Mo.*
Sociology.
- Hall, Stella G.; Neodesha.
Education.
- Hamill, Elma; Sterling.
Music, English.
- Hancock, Zenobia Ethel; *Lexington, Mo.*
Mathematics, Drawing, Philosophy.
- Hanes, Martha; Ottawa.
Physiology.
- *Hangen, Luther H.; Wellington.
Sociology, Economics, Psychology.
- Hanna, Mary; Lawrence.
Entomology.
- Hanscome, Marcella Morgan; Lawrence.
Sociology, Botany.
- *Harms, Marvin William; Wichita.
Economics, History, English.
- Harper, Leta Maude; Lawrence.
Education.
- *Harrel, Chastain Gaint; Lawrence.
Mathematics, Chemistry.
- Harris, Annie G.; Lawrence.
German.
- Hart, Patricia; Grenola.
Physics.
- Hartsock, Robert E.; *Stillwater, Okla.*
Mathematics, Philosophy.
- *Hassig, Cecil Edwards; Kansas City.
Chemistry, Anatomy.
- Hawkins, Winfred Weeden; Lawrence.
Chemistry.
- Haworth, Rose E.; Lawrence.
French, Public Speaking, English.
- Hawthorne, Zellah Laura; Sterling.
Latin, Spanish.
- Hay, Abraham Jones; McLouth.
History, Sociology, Economics.
- *Hays, Claude Arthur; Minneola.
History, Sociology, Economics.
- Hayward, Glen Adelbert; Ottawa.
Botany, History.
- *Heathman, Lucy; Lawrence.
Medicine.
- *Helwig, Ferdinand Christian; *Kan. City.*
Chemistry.
- Henderson, Clara Gladys; Meriden.
Music, History.
- *Henderson, Margaret M.; Lawrence.
Music.
- *Hereford, Melvin; Marion.
Physiology.
- *Heren, Walter Graff; Lawrence.
Journalism, Public Speaking,
Mathematics, English.
- Herrick, Vera S.; Niles.
Music, Spanish.
- *Herron, Allen Murray; Eureka.
Education.
- Hibner, Elsie Hope; Lawrence.
Philosophy, Education.
- Hight, Anna Louise; Arkansas City.
Home Economics, Sociology, English.
- Hilkey, Leone Catharine; Lawrence.
Entomology.
- *Hill, Ormond P.; Lawrence.
Law, Economics.
- Hobart, Harold Nelson; *Kan. City, Mo.*
Entomology.
- *Hockenhull, Floyd L.; Lawrence.
Mathematics, Economics.
- Hodder, Frederika; Lawrence.
History, Spanish.
- *Hoffmann, William Edwin; Lawrence.
Entomology.
- Holl, Mary Pauline; Topeka.
Chemistry.
- *Holland, Benjamin L.; Lawrence.
Law, History, Economics.
- *Hollis, Edgar Leon; Fredonia.
Botany, Journalism, English, Sociology.
- *Holloway, Richard B.; Lawrence.
Education, Economics.
- Holm, Jane; Atchison.
Economics, History, English.
- Holmes, Ralph M.; Douglass.
Music.
- Holt, Emily; Lawrence.
English, French.
- Hood, Catherine; Lawrence.
Drawing.
- Hooley, Ila May; Dunlap.
Home Economics, Education.
- *Hoover, Hadley Halbert; Mound City.
Mathematics, English.
- Hoover, Melvin Vincent; Russell.
German, History.
- Hoover, Raymond Kenneth; Haddam.
Physiology.
- Hoover, William Thomas; Mound City.
Education.
- Horton, Martha Virginia; Lawrence.
Spanish.

SUMMER SESSION, 1919—continued.

- Hough, Laura M.; Wetmore.
Music.
- *Houghton, Emma F.; Lawrence.
Sociology, Home Economics.
- Hubbell, Edith; Lawrence.
Physics, Physiology, Zoology, Botany.
- Hudson, Mabel S.; Chanute.
English, Education.
- *Hughes, Charles Donald; Lawrence.
Geology.
- *Hughes, Lawrence D.; Lawrence.
Economics.
- Hults, Arlo; Lawrence.
Music.
- *Humphrey, Anita; Chanute.
English, Sociology.
- Hunter, Lois; Zenda.
French, Education.
- Huntington, Forrest William; Pawnee Rock.
French, Education, Zoology.
- Hurwitz, Samuel J.; Lawrence.
Physiology.
- Huston, Harry E. K.; Winfield.
Education.
- Hyre, Myrtle E.; Lawrence.
Home Economics.
- Iden, Gaye; Arkansas City.
Physiology.
- Iden, Glee; Arkansas City.
Economics, Home Economics.
- Isaac, Wanda S.; Newton.
Spanish.
- *Isenberger, Robert M.; Salina.
Physiology.
- *Jackman, Katherine; Lawrence.
Botany.
- Jackson, Clara; Lawrence.
English, Sociology.
- *Jackson, Helen Elizabeth; Kansas City.
History, French.
- Jackson, Luther Porter; Kansas City.
Education, History.
- *Jarvis, Lula Gail; Lucas.
Spanish, Public Speaking.
- *Jenks, Helen; Lawrence.
Music.
- Jennison, James; Tulsa, Okla.
Education, Philosophy, Zoology.
- Jewett, Isabel Irene; Waverly.
Mathematics, English.
- Jillson, Helen B.; Frankfort.
Sociology, English, Zoology.
- Johnsmeyer, Vera; Riley.
Bacteriology.
- *Johnson, Bertha Blanche; Cambridge.
Law, English, Spanish.
- Johnson, Mrs. Gertrude; Severy.
Education.
- Johnson, Julia; Lawrence.
Music.
- *Johnson, Ruth; Lawrence.
Music.
- Johnson, W. H.; Independence, Mo.
Education, Physical Education.
- *Johnston, L. Clifford; Lawrence.
Journalism, English.
- Jones, Beatrice; Hennessey, Okla.
Music.
- Jones, Henry Alexander; Quindaro.
Education.
- Jordan, Myra Mills; Lawrence.
Drawing.
- *Josephson, Reuben; Kansas City, Mo.
Economics, English, Mathematics.
- Kaufman, Hester J.; Lawrence.
Anatomy.
- *Kaylor, Payton H.; Fort Scott.
Chemistry, Philosophy.
- *Keckley, Hugh H.; Agra.
French, Economics.
- Keeven, John Patrick; Wathena.
Law, History, Philosophy.
- *Kellogg, Ernest Clinton; Lawrence.
Chemistry, Physiology.
- Kelly, Sherwin Finch; Lawrence.
Geology.
- Kennedy, Claire; Leavenworth.
Music, History, Public Speaking.
- Kennedy, Grace; Holton.
Spanish, Drawing, English.
- Kennedy, Hettie; Leavenworth.
History, Public Speaking.
- Kennedy, Opal Jayne; Lawrence.
Education, Home Economics.
- Kennedy, Velma; Holton.
Spanish, English.
- *Kennedy, Winifred Frances; Lawrence.
Entomology.
- Kerr, J. Wendell; Wichita.
Journalism, History.
- *Kinkel, John F.; Topeka.
Physics.
- *Kinney, Agatha; Lawrence.
Botany, Drawing, English, French.
- Knabe, Hazel Etta; Moline.
History, English.
- *Knott, Florence; De Soto.
English, Education.
- *Koehring, Gertrude; Lawrence.
Chemistry.
- *Kollmann, Jack E.; Lawrence.
Physics, English, Economics.
- *Korb, John H.; Lawrence.
Physiology.
- Koslosky, Isadore Dewey; Kan. City, Mo.
Zoology.
- Kough, Fern Inez; Westphalia.
French, Economics.
- Krebs, Anna Margaret; Lawrence.
English, Education.
- Krouse, Rollo; Wheaton.
Economics, Bacteriology, Zoology, Philosophy.
- Kubik, Clara Mary; Caldwell.
English, History.
- Kubik, Emily Clementia; Caldwell.
English, History.
- *Kuhn, Bernice A.; Lawrence.
Zoology.
- *Kunkel, Gladys Irene; Lawrence.
Physics, Sociology.
- *Kurek, Thaddeus; Leavenworth.
English, Mathematics.
- Lain, Nell E.; Kansas City, Mo.
History, Philosophy.
- Lane, Oscar Jasper; Lawrence.
Sociology.
- *Laslett, Howard P.; Lawrence.
Geology.
- *Law, S. Marcellus; Lawrence.
Mathematics, Chemistry.
- Lawrence, Effie L.; Garden City.
Education, English.
- *Leach, Fred George; Arkansas City.
Painting, Economics, English.
- Lenhart, Pearl; Kansas City, Mo.
History, Journalism, Entomology.
- Levi, Laura May; Olathe.
English.
- Lewis, Benj. Parker; Amber, Okla.
Mathematics, Philosophy.
- *Lewis, Marion Florence; Lawrence.
Chemistry, Zoology, English.

* Also in current session.

SUMMER SESSION, 1919—continued.

- Li, Min H.; *Honolulu, Hawaii*.
Anatomy.
- Light, Grace; Lawrence.
English, Latin, Education.
- Linton, Lucile; Kansas City.
Education, English.
- *Little, Herbert Blenis; Lawrence.
Journalism, Mathematics, Zoölogy,
English.
- Lucas, Minnie; Lawrence.
Music.
- *Lynn, Hazel Eugene; Lawrence.
Music.
- Macdonald, Margaret A.; Waterville.
History, French, Music.
- MacDougall, Ernest D.; Lawrence.
Education, Sociology.
- *MacGregor, Gladys; Medicine Lodge.
Economics, Education.
- Mackie, Elizabeth; Lawrence.
Voice.
- *Madden, Mollie; Hays.
Chemistry.
- Magerkurth, Helen; Wichita.
Education, Spanish, French, Voice.
- Makepeace, Lynn; Lawrence.
Piano.
- Malin, James C.; Hutchinson.
History, French.
- Mallory, Clara; Leavenworth.
Education.
- Maloy, Eva; Eureka.
Entomology.
- *Marker, Daniel Isaac; Ozawkie.
English, History, Mathematics.
- Marshall, Mrs. Russell Claire; *Enid, Okla.*
French.
- Marshall, Russell Claire; *Enid, Okla.*
Education, Philosophy.
- Martin, Isaac V.; Pawnee Rock.
Education.
- Martin, May; *Kansas City, Mo.*
Education.
- Martin, Rebecca; Garnett.
French.
- Martin, Wilfred E.; Lawrence.
Anatomy.
- *Matthews, Violet E.; Topeka.
Education.
- Mattoon, Edith D.; Lawrence.
English.
- Mattson, Hulda; Inman.
English, Spanish.
- *Mayer, Lillian; Lawrence.
Philosophy.
- Medill, George Tabor; Leavenworth.
Chemistry.
- Mee, William; *Oklahoma City, Okla.*
Entomology.
- Meeker, Olinda A.; Emporia.
Spanish.
- *Melville, Marguerite V.; Eudora.
Sociology, Zoölogy.
- Menehan, Francis Lionel; Beattie.
Sociology, Latin.
- Messick, Arthur; Topeka.
Chemistry.
- *Metsker, Sonora Tulena; Lawrence.
Economics, French, History.
- Meyer, Fred W.; Jewell.
History, Education.
- *Miles, Ann Margaret; Lawrence.
Physical Education, Home Economics
Bacteriology, Philosophy, Economics.
- Miller, Caroline Esther; *Helena, Okla.*
Education, Botany.
- *Miller, James Ellsworth Burney; Iola.
Law, Economics.
- Miller, Frank; Pittsburg.
Physics, Sociology, Mathematics.
- *Miller, Lester; *Kansas City, Mo.*
Economics.
- *Mnookin, Nathan M.; Lawrence.
Chemistry.
- *Monteith, John Nelson; Lawrence.
Journalism.
- *Montgomery, John Alexander; Lawrence.
Law, Sociology.
- Moore, Leah Irma; Holton.
Journalism, Education, Voice.
- Moore, Lelia Z.; Holton.
English, Education.
- *Moren, Dorothy C.; Lawrence.
French.
- Moyer, Harvey Vernon; Savonburg.
Physics.
- *Murphy, Albert P.; Lawrence.
Law.
- Murphy, Gladys Alta; Cherryvale.
Home Economics, English.
- Myers, Mary I.; *Kansas City, Mo.*
Education.
- McCafferty, Estella; *Webb City, Mo.*
Economics, Sociology, Zoölogy,
Education.
- McCaffrey, Cuba; Tonganoxie.
History, Economics, English.
- McCaffrey, Margaret E.; Tonganoxie.
History.
- McConnell, Edith E.; Council Grove.
English, History.
- McCord, Theodore E.; Topeka.
Education, Mathematics.
- McCoy, N. Rachel; Wamego.
Public Speaking.
- McCreath, Catherine E.; Lawrence.
Education.
- McCreath, David; Lawrence.
History, Economics.
- McCrellis, Lulu M.; Englewood.
Education, Spanish.
- *McDougal, Vida; Lawrence.
Education, Voice.
- *McElroy, John Willis; Lawrence.
Law.
- McGee, Nelle Rosemary; Coldwater.
Drawing.
- *McGuffey, Alice Wyman; Lawrence.
Zoölogy, Philosophy, Sociology.
- McKee, Minda; Topeka.
Spanish.
- *McKibben, Harry Clinton; Lawrence.
Sociology, Public Speaking,
Economics, Zoölogy.
- *McLaughlin, Louise; Greensburg.
English, Voice.
- McMillan, Beulah; *Kansas City, Mo.*
English, Public Speaking.
- *McMurfhey, John; Lawrence.
Entomology, Zoölogy, English.
- *McNary, Mabel; Garnett.
Music.
- *McNaught, James B.; Girard.
Chemistry.
- *McPherson, Hobart Mervin; Lawrence.
Economics, Sociology, History.
- Neely, Mary I.; Pomona.
History, Education.
- Nelson, Camilla; Lawrence.
Education.
- *Nelson, Josephine; Lawrence.
Drawing, Journalism, Botany.

SUMMER SESSION, 1919—continued.

- Nelson, Lawrence Emerson;
Siewa Falls, S. Dak.
English, Education.
- Nelson, Richard Robinson; *Kansas City, Mo.*
Mathematics, History.
- Neptune, Harold E.; *Salina.*
Chemistry.
- *Nevitt, J. R.; Mildred.
Physics.
- Newman, Mildred; Lawrence.
Mathematics, Education.
- Newsome, Marie; Tonganoxie.
Astronomy, History, Economics,
English.
- *Nicholson, Helen Julia; Lawrence.
Zoölogy, Mathematics.
- Nicholson, Hodgdon Ida; Lyons.
Latin.
- *Nixon, Mabel; Lawrence.
History, French, Education.
- *Nungesser, Ella; Lawrence.
Piano.
- *O'Brien, Elizabeth; Lawrence.
Voice.
- O'Bryan, Mrs. Anna B.; Lawrence.
History, Public Speaking,
Economics, Education.
- Oldfield, Verne Cline; *La Cygne.*
Bacteriology.
- *Orelup, Faye; Lawrence.
Sociology, Home Economics.
- *Oshorn, Mrs. Sylvia Alford; Lawrence.
Music.
- Osborn, Luella Pearl; Ashland.
Journalism, French.
- Osborne, John F.; *Kansas City, Mo.*
Education, Physical Education.
- Owens, Guy E.; *Topeka.*
Medicine, Physiology.
- Palmer, Alice Helen; Girard.
History, Sociology.
- Palmer, Miriam A.; *Fort Collins, Colo.*
Physiology.
- Pasley, H. L.; Frontenac.
Education.
- *Patty, F. Arthur; Lawrence.
Chemistry.
- *Payne, Bernice Walker; Wichita.
Latin, French.
- *Peacock, Vera; Blue Rapids.
Bacteriology, Philosophy, English.
- Pears, Helen; Lawrence.
Education.
- *Pearson, Lydia; Courtland.
Education.
- *Pendleton, Theo. P.; Lawrence.
Chemistry.
- Penn, Pertilla; Atchison.
Education.
- Penwell, Vivian Strange; Perry.
History, Sociology, English.
- *Perkins, Alice M.; Howard.
English, History, Philosophy.
- Peters, Gerald Rupert; *Kansas City, Mo.*
Bacteriology, Botany.
- Phenicie, Edith Anne; Tonganoxie.
English, Sociology.
- Phenicie, Ella; Tonganoxie.
Education, Sociology.
- Phillips, John Foster; Winfield.
Mathematics, Education.
- Phinney, Royal Victor; Larned.
Sociology, Public Speaking, Education.
- Pierce, Walter Weston; *Neosho, Mo.*
Sociology, History, Zoölogy.
- *Pittman, Clara Amanda; Liberal.
English, Sociology, Education.
- Plumb, Luella; Lawrence.
Voice, Piano.
- Pollard, Jamrd Hybert; Lawrence.
Education.
- Potter, C. E.; Harveyville.
Philosophy, Physical Education.
- Price, Edwin Fletcher; Lawrence.
Sociology.
- *Puffett, Dale Howard; Lawrence.
Zoölogy.
- Pugh, Mary Hopel; Ottawa.
French, Physical Education.
- Rabourn, Emma P.; Lawrence.
English, Sociology, History.
- *Ramsey, Ruth; Fort Scott.
Economics, French, English.
- *Randolph, William M.; Lawrence.
English.
- Rawls, Adolphus C.; Hollenberg.
French, Education.
- Ray, Jennie; Parsons.
Music.
- Read, Marion Harvey; Towanda.
Journalism, Psychology.
- Rearick, Anna Janette; Lawrence.
Economics, French, History.
- Redmond, Mabel E.; Lawrence.
Education.
- *Reed, Francis Sentry; Newton.
Geology.
- Reed, Ula May; Attica.
Botany, Education, Physical
Education, Zoölogy.
- *Reid, Marion Clarence; Newton.
French, Economics.
- *Reid, Theodore Carey; Stafford.
Chemistry.
- Reinisch, Marguerite; Lawrence.
English, French, Latin, Education.
- Rennick, Leona; Rosedale.
Psychology, Drawing.
- Rennolds, Closson Elansen; Dunlap.
Education.
- Reynolds, Beulah Allen; McPherson.
French.
- Reynolds, Cora Irene; Lawrence.
Voice.
- Reynolds, Wilder R.; McPherson.
Education, Philosophy, Zoölogy.
- *Rice, Alice; Lawrence.
History, French.
- *Rice, William Ivan; Lawrence.
Law.
- Riegle, Roy Wilford; Emporia.
Sociology, Philosophy.
- Rife, Mildred; Anthony.
English, History, Philosophy.
- *Riggs, Hazel May; Lawrence.
Psychology, Education.
- *Rinehart, Hattie; Lawrence.
Sociology, Home Economics.
- Rising, Frank; Lawrence.
Piano.
- Riste, Rose A.; Rosedale.
Chemistry.
- *Ritter, Cassandra; Iola.
Chemistry.
- Ritter, Neva; Iola.
Bacteriology.
- Robinson, Leah Claire; *Joplin, Mo.*
English, History.
- Robinson, Rhoda Kathryn; Oskaloosa.
History, Psychology.
- *Rodgers, Paul William; Beloit.
Mathematics, History.
- Roe, Goldie; Webber.
Music.
- *Roop, Charles William; Abilene.
Geology.

SUMMER SESSION, 1919—continued.

- Root, Esther L.; Olathe.
English History, Zoology.
- Ross, Evelyn Louisa; Lawrence.
Journalism, English, Public Speaking.
- Rundle, Edith; Bartlesville, Okla.
French, Latin.
- Rush, Charles Hiram; Cedar Vale.
Education.
- *Russell, Iris; Kansas City.
Economics, Spanish.
- Russell, Lloyd E.; Lawrence.
French.
- Russell, Roy D.; Great Bend.
Bacteriology.
- St. John, Claude E.; Arkansas City.
Education.
- *Sallee, Flora-Myrtle; Hutchinson.
Entomology.
- Sample, Sarah Eleanor; Eureka.
Physics.
- Sandidge, Allen Wilson; Mulberry.
Physiology.
- Santee, George W.; Cherokee, Okla.
Education, Mathematics.
- Scalapino, Mrs. Hazel; Everest.
Education, Music, Public Speaking.
- Scalapino, William; Everest.
Education.
- *Schaible, Ethel Ferne; Fairview.
Spanish, Sociology.
- *Schick, Fern; Lawrence.
Education, History.
- Schlotterbeck, Clarence A.; Mullinville.
Sociology, Economics.
- Schmidt, Willa Katherine; Kan. City, Mo.
Education.
- *Schnitzler, Fritz W.; Wichita.
Chemistry.
- Schoier, Otto Charles; Lawrence.
Anatomy.
- *Schoonover, John Ansel; Lyons.
Chemistry.
- *Schwartzkopf, Edward A.; Bison.
History, Law, Economics.
- *Schwarz, Joe; Lawrence.
Chemistry, Zoology, Sociology.
- Scott, Harley J.; Lawrence.
English, Physics.
- Seaver, Wirt D.; Marquette.
Education.
- *Seeberg, Abe; Lawrence.
Chemistry.
- *Selig, August L.; Lawrence.
Geology.
- Sellers, James L.; Neosho Rapids.
Law, History.
- *Semon, Florence Margaret; Lawrence.
Home Economics, Sociology,
Education.
- Severson, Lewis E.; Lawrence.
English, Law.
- *Shale, Rachel B.; Lawrence.
Zoology, Philosophy, English.
- *Shane, Mildred D.; Kansas City, Mo.
Education.
- *Sharp, Oscar; Pittsburg.
Chemistry, Anatomy.
- Shaw, Wayne F.; Alma.
Education, Sociology.
- Sheads, Anna Margaret; Fort Scott.
French, English.
- *Shillerston, Dewey; Lawrence.
Law.
- *Shirley, Juvonia Joy; Lucas.
Spanish, English.
- *Shores, Belva; Burr Oak.
Music.
- *Shure, Manuel M.; Kansas City, Mo.
Economics, English, Mathematics.
- Siever, Lecile; Wichita.
English.
- Simpson, Charles Hoke; Cassoday.
Education, Zoology.
- Simpson, Mrs. Minnie S.; Cassoday.
Education, Sociology.
- Skinner, Wiley Vernon; Fontana.
Education, English.
- Sloop, Ernest W.; Lyndon.
Chemistry.
- *Smiley, Stanton L.; Wilder.
Law.
- Smiley, Verna; Silver Lake.
Mathematics, Philosophy.
- Smith, Charles Franklin; El Dorado.
Education, Mathematics.
- *Smith, Elbert Francis; Ellinwood.
Law.
- *Smith, Erma Anita; Sharon.
Physiology, Education.
- *Smith, Hazel M.; Lawrence.
Sociology, English.
- Smith, J. LeRoy; Agra.
Chemistry.
- Smith, Martha Persis; Kansas City, Mo.
History, French.
- Smith, Maude Ethel; Sterling.
Mathematics, Education.
- Smith, N. Clark; Kansas City, Mo.
Music.
- Smyth, Mrs. Lumina C. Riddle; Topeka.
Education.
- Sneller, Lillian May; Rossville.
Journalism.
- Solt, Orva Esther; Waterville.
English, Sociology.
- *Spangler, B. Karl; Lawrence.
Physics.
- *Spotts, Ruth; Lawrence.
Voice.
- Spurrier, Leo; Kingman.
Education.
- *Stanley, Constance Eleanor; Lawrence.
Piano.
- *Stanley, George B.; Rosedale.
Chemistry, Bacteriology.
- Stark, S. H.; Ozawkie.
Education, Economics.
- Statton, Dorothy; Ashland.
Journalism, Music, Physical Education.
- Steele, Alice; Winfield.
Education, Spanish.
- *Steininger, Edith; Chapman.
Chemistry.
- Stephens, Myrtle C.; Topeka.
Sociology.
- Stephens, Winifred; Kansas City.
Spanish, English.
- *Sterling, Lucile; Lawrence.
Bacteriology.
- *Sterling, Pauline; Lawrence.
Chemistry.
- Stevens, Roy U.; Lawrence.
Physiology, Chemistry.
- *Stevenson, Edward; Lawrence.
Chemistry.
- Stewart, Annarrah; Lawrence.
English, Sociology.
- Stewart, Olive Maude; Baldwin City.
German, Education.
- Stoland, Rae Evelyn; Lawrence.
Piano.
- *Stone, Anna; Lawrence.
Chemistry.

* Also in current session.

SUMMER SESSION, 1919—continued.

- *Stover, Harry L.; Lincoln.
English, Economics, Philosophy.
- *Strong, Kathryn; Lawrence.
Botany, French.
- Stuart, K. Stella; Lawrence.
Sociology, Education.
- *Studer, Mrs. Jessie Foster; Lawrence.
Home Economics, Sociology, Zoology.
- *Studer, William Joseph; Lawrence.
Economics, Journalism, Public Speaking, English, Philosophy.
- Sturgeon, Vivian; Lawrence.
Sociology, History, Economics, English.
- *Summers, Myra; Lawrence.
Voice.
- Summerson, Katherine; *Kansas City, Mo.*
History, Education.
- Sunbarger, Lee C.; Cassoday.
Public Speaking, History.
- Sutton, Lena; Lawrence.
Zoology.
- Swanson, Esther H.; Lawrence.
Education.
- Swanson, John Fred; Marquette.
Education, Journalism, Philosophy.
- Swayze, Paul Daniel; Lawrence.
Education.
- *Sweigart, Gladys Naomi; *Kansas City.*
English, Education.
- Symms, Edith M.; Hutchinson.
Sociology, Economics.
- Symms, M. Inez; Newton.
Sociology, English.
- Tann, William Edward; *Kansas City.*
Chemistry, Mathematics, English.
- *Taylor, James Ross; *Oskaloosa.*
History, Economics, Education.
- Taylor, Minnie; *Leavenworth.*
Music.
- Templeton, Margaret; *Winfield.*
Education, English.
- Terry, Lewis E.; *Kansas City, Mo.*
History, Economics.
- *Tester, Allen C.; *Coffeyville.*
Geology.
- Thiele, Edna B.; *Washington.*
Music.
- *Thomas, Aileen Lois; Lawrence.
Spanish, Drawing.
- Thompson, Fred M.; Horton.
Education, History.
- *Thompson, Hallie Armida; Lawrence.
English, History.
- *Thompson, William R.; Halstead.
Education.
- Tibbals, Gladys Louise; *Emporia.*
Spanish.
- Tibbetts, Eunice Catherine; *Blue Rapids.*
French, Education.
- Tomlinson, John R.; *Independence.*
Education.
- *Toomey, Richard A.; Lawrence.
Law.
- *Towne, Ralph L.; Lawrence.
Chemistry.
- Traster, Stella; *Fredonia.*
Education.
- *Traul, Ruth; *La Cygne.*
Education, English.
- Travis, Mrs. Emily Miller; *Independence.*
Home Economics, Philosophy, Zoology.
- True, Ella P.; *Topeka.*
Economics, History.
- Truesdale, Anna B.; *Leavenworth.*
Education.
- Tseu, Yuk En; *Honolulu, Hawaii.*
Chemistry.
- *Tummel, Theresa; Lawrence.
Home Economics, English, Zoology.
- Turner, Estella Dortha; *Clifton.*
Music.
- Turner, Mamie A.; *Topeka.*
Education.
- Tyer, Gertrude; Lawrence.
Education.
- *Uhrlaub, Rudolf R.; Lawrence.
Geology.
- Upton, Mina; *Rosedale.*
Journalism.
- *Vail, Helen Robison; *St. Joseph, Mo.*
English, History.
- Van Riper, Herbert; *Minneola.*
Music.
- *Van Sandt, Eileen; *Chanute.*
Spanish.
- *Van Velzer, Harry L.; *Fort Scott.*
Chemistry, Mathematics, Sociology.
- *Varner, Luella; *Iola.*
Entomology.
- *Vermillion, Frank H.; *Lyons.*
Law.
- Wachter, Willard L.; *Parkville, Mo.*
Botany, Zoology.
- *Waggener, Balie Peyton; *Atchison.*
History.
- *Walker, Arthur T.; Lawrence.
Chemistry, French.
- Wall, P. F.; *Hillsboro.*
History, Education.
- Wallace, R. Boyd; *Stafford.*
Economics.
- Walling, Lalia V.; Lawrence.
Chemistry.
- Walling, Lulu Grace; Lawrence.
Botany.
- Wann, Wilfred Curtis; Hays.
English, Botany,
Economics, Philosophy.
- *Ward, Winifred Emily; Lawrence.
Sociology, Public Speaking.
- Watkins, Ethel May; *Mont Ida.*
Physiology.
- *Watkins, Mary Elizabeth.
Spanish, Botany, Zoology, English.
- *Watson, George Nathaniel; Lawrence.
Zoology.
- Weaver, Carrie; *Belleville.*
English, History.
- Weaver, Glenn S.; *Concordia.*
Chemistry, Anatomy.
- Weber, Eva; *Hutchinson.*
English, Education.
- *Webster, Paul R.; *Larned.*
Chemistry, Physiology.
- *Webster, Redford; Lawrence.
Physics.
- *Wedell, Emilie; Lawrence.
Sociology, Economics.
- Wedell, Emma Caroline; Lawrence.
Drawing.
- Weigand, Herman; *La Crosse.*
Education, Zoology.
- Welker, Joseph E.; Lawrence.
Anatomy.
- Welton, Grace Mae; *Princeton.*
Music.
- Welty, Miriam; *Neodesha.*
Music.

* Also in current session.

SUMMER SESSION, 1919—continued.

- West, Fred C.; Wichita.
Education.
- West, Genevieve; Lawrence.
Education.
- West, John K.; *Kansas City, Mo.*
History.
- *Wheeler, Mabel Ranney; Lawrence
Sociology.
- Wheeler, Ranney James; Lawrence.
Chemistry.
- Wherry, Neal M.; Sterling.
Education, Sociology.
- Whirlow, Florence; *Kingfisher, Okla.*
Spanish.
- Whitby, Lillian; Emporia.
Spanish.
- Whitmore, Alice; *Kansas City.*
Spanish, Public Speaking.
- Widener, Letha M.; Winfield
Education.
- *Wilbur, Clifford Henry; Lawrence.
Anatomy.
- Wilhite, Bessie; Rosedale.
English.
- *Wilhite, Margaret Lucile; Rosedale.
Public Speaking, English.
- *Willems, Leonard C.; Lansing.
Chemistry.
- Williams, J. Loyd; Lawrence.
French.
- Wilson, Agnes Helen; Lawrence.
Education.
- *Wilson, Allen D.; Chanute.
Economics.
- Wilson, Fern F.; Coffeyville.
French, English.
- Wilson, Hazel E.; Lawrence.
Spanish.
- Wilson, Hazel Esther; Leoti.
History, Sociology, Education, Zoölogy.
- Wilson, Helen A.; Lawrence.
Spanish.
- Wilson, L. O.; Girard.
Chemistry.
- Wiseman, Kenneth Carson; Lawrence.
Journalism.
- *Woodward, George J.; Lawrence.
Psychology, Education.
- Wright, Charles C.; Smith Center.
Education.
- *Wright, Erwin A.; Wichita.
Bacteriology.
- Wyckoff, Ethel; *Washington, Ind.*
Education, Music.
- Wynn, Edith Annetta; Lawrence.
Education.
- Yang, Shu Ya; *Hunan, China.*
English, History, Public Speaking,
Botany.
- *Yeater, Georgia Rains; Lawrence.
Chemistry.
- Young, Myrtle M.; *Kansas City, Mo.*
Education, Sociology, Music,
Economics, Zoölogy.
- Young, Nellie M.; Seneca.
Mathematics, English, Education.
- *Young, Ray R.; Lawrence.
Drawing.
- Young, Vivian Genevieve; *Rosedale, Mo.*
Home Economics, Sociology.
- Zook, Arthur D.; South Haven.
Education.
- Zook, Katherine; Fort Scott.
Chemistry, Mathematics, Zoölogy.

TOTAL, 710.

* Also in current session.

OTHER INSTITUTIONS

FROM WHICH STUDENTS WERE ADMITTED WITH ADVANCED STANDING,
1919-'20.

<i>Institutions.</i>	<i>Candidates.</i>	<i>Institutions.</i>	<i>Candidates.</i>
Akron Munic University.....	1	New Mexico A. & M. College.....	1
Baker University.....	16	New Mexico State Normal.....	1
Beechwood School.....	1	Nickerson College.....	1
Beloit College.....	1	Northwestern College.....	2
Bethany College.....	5	Northwestern School of Ora.....	1
Bethel College.....	2	Ohio Wesleyan.....	1
Bonebrake Theological Seminary.....	1	Oklahoma A. & M. College.....	1
Bradford College.....	1	Oklahoma Central State Normal.....	2
Brenan College.....	1	Oklahoma S. E. State Normal.....	2
Carnegie Institute.....	1	Oklahoma S. W. State Normal.....	1
Central College.....	1	Oklahoma N. W. State Normal.....	4
Central Wesleyan College.....	1	Oswego College.....	2
Chicago University.....	1	Ottawa University.....	6
Christian College.....	1	Park College.....	7
Clermont, France (A. E. F.).....	1	Phillips University.....	3
Clinton Theological Seminary.....	1	Poitiers, France (A. E. F.).....	2
Colorado Agricultural College.....	2	Randolph Macon.....	2
Colorado College.....	1	School of Osteopathy.....	1
Cooper College.....	7	Sisters of Bethany.....	1
Cornell College.....	1	Smith College.....	1
Dakota Wesleyan University.....	1	Southwestern College.....	12
Dana Hall.....	1	Southwest Texas Normal.....	1
Dillenebeck School.....	1	Stephens Junior College.....	4
Drake University.....	2	St. Joseph Junior College.....	2
Drury College.....	1	St. Marys College.....	1
Emporia College.....	15	St. Mary of the Woods.....	1
Fairmount College.....	10	Texas Military College.....	1
Friends University.....	3	Texas School of Mines.....	1
Georgetown Vis. Convent.....	1	Toulouse University (A. E. F.).....	1
George Washington University.....	2	Transylvania College.....	2
Graceland College.....	1	Union College.....	1
Grand Island College.....	1	University of Alberta.....	1
Grenoble, France (A. E. F.).....	3	University of Arkansas.....	1
Hardin Junior College.....	2	University of California.....	1
Hays Normal.....	5	University of Colorado.....	15
Heidelberg University.....	1	University of Denver.....	1
Henry Kendall College.....	1	University of Illinois.....	4
Highland Park College.....	1	University of Indiana.....	1
Hollins College.....	1	University of Iowa.....	2
Holton Junior College.....	1	University of London (A. E. F.).....	1
Idaho College.....	1	University of Michigan.....	2
Iowa State College.....	1	University of Minnesota.....	3
Kalamazoo College.....	1	University of Missouri.....	18
Kansas City Dental College.....	1	University of Nebraska.....	1
Kansas City Junior College.....	1	University of New Mexico.....	3
Kansas City Polytechnic Institute.....	38	University of Oklahoma.....	5
Kansas City Teach. Train. School.....	1	University of Oregon.....	1
Kansas City University.....	1	University of Pennsylvania.....	1
Kansas State Agricultural College.....	29	University of Tennessee.....	1
Kansas State Manual Training Normal.....	13	University of Texas.....	2
Kansas State Normal.....	30	University of Washington.....	4
Kansas Wesleyan.....	4	University of Wisconsin.....	2
Kings College, London (A. E. F.).....	2	University of Wyoming.....	2
Knox College.....	1	Valparaiso University.....	2
Leander Clark.....	1	Vanderbilt University.....	1
Lindenwood College.....	6	Virginia Intermont & Crescent.....	2
Manila College.....	1	Ward-Belmont.....	1
Maryland College.....	1	Warrensburg Normal.....	2
Marysville Junior College.....	1	Washburn College.....	19
Miami University.....	2	Washington & Lee.....	1
Midland College.....	9	Washington University.....	2
Miltonvale Wesleyan College.....	1	Wentworth Military Academy.....	1
Maderias School.....	1	Wheaton College.....	1
Missouri Wesleyan.....	1	Wilberforce University.....	2
Monticello Seminar.....	1	William Woods Junior College.....	1
Montpellier, France (A. E. F.).....	1		
McPherson College.....	8		
National Park Seminar.....	1		
		Candidates.....	437
		Institutions.....	133

NOTE.—Students in above classification who offered credentials from two or more schools, 35.

ENROLLMENT 1919-1920.

SCHOOLS.	Men.	Women.	Total.
THE GRADUATE SCHOOL:			
Regular Session.....	70	50	120
Summer Session.....	55	60	115
THE COLLEGE OF LIBERAL ARTS AND SCIENCES.....	1406	1041	2447
Senior Class.....	142	161	303
Junior Class.....	185	193	378
Sophomore Class.....	281	230	511
Freshman Class.....	583	318	901
Specials.....	215	139	354
THE SCHOOL OF ENGINEERING.....	727	14	741
Senior Class.....	53	1	54
Junior Class.....	99	1	100
Sophomore Class.....	182	5	187
Freshman Class.....	305	3	308
Specials.....	88	4	92
THE SCHOOL OF FINE ARTS.....	65	323	388
Senior Class.....	2	17	19
Junior Class.....	.....	18	18
Sophomore Class.....	7	27	34
Freshman Class.....	12	86	98
Specials.....	44	175	219
THE SCHOOL OF LAW.....	199	3	202
Senior Class.....	21	.....	21
Middle Class.....	59	1	60
Junior Class.....	87	1	88
Specials.....	32	1	33
THE SCHOOL OF PHARMACY.....	52	14	66
Senior Class.....	16	3	19
Junior Class.....	18	6	24
Sophomore Class.....	11	3	14
Freshman Class.....	5	2	7
Specials.....	2	.....	2
THE SCHOOL OF MEDICINE.....	126	35	161
Senior Class.....	24	.....	24
Junior Class.....	28	4	32
Sophomore Class.....	30	2	32
Freshman Class.....	44	1	45
Nurses.....	.....	28	28
THE SCHOOL OF EDUCATION.....	44	293	337
Graduates.....	15	12	27
Seniors.....	15	120	135
Juniors.....	10	101	111
Specials.....	4	60	64
Total Enrollment, Regular Session.....	2689	1773	4462
Names counted twice.....	388	494	882
Totals.....	2301	1279	3580
THE SUMMER SESSION.....	301	409	710
Summer students in current session.....	146	142	288
Totals.....	155	267	422
TOTAL REGISTRATION, 1919-20.....	2456	1546	4002

1910.....	21	8	71	99	49	50	22	1	9	19	1	349	18	3
11.....	35	11	80	90	54	48	1	9	2	16	16	2	367	15	6
12.....	30	17	93	103	56	56	.....	13	.....	.....	.....	20	14	.....	.....	.....	406	37	8
13.....	37	18	87	108	58	49	.....	19	.....	2	.....	18	9	.....	.....	.....	406	28	11
14.....	36	37	102	101	64	63	1	15	.....	.....	.....	18	9	.....	.....	.....	449	32	28
15.....	40	29	102	112	56	36	.....	17	.....	2	.....	17	13	.....	.....	.....	428	20	10
16.....	44	31	81	115	47	42	.....	11	.....	.....	.....	5	17	.....	.....	.....	415	25	13
17.....	37	28	85	133	54	50	.....	11	.....	2	.....	14	29	.....	.....	.....	446	41	13
18.....	15	18	66	122	26	19	.....	5	.....	1	.....	10	30	.....	.....	.....	315	23	11
19.....	15	11	54	149	26	14	.....	.....	.....	.....	.....	8	33	.....	.....	.....	316	23	6
Totals...	510	812	1 744	1 386	839	1 330	19	441	38	14	255	295	15	16	21	32	56 7 913	567	320	

CLASSIFICATION OF STUDENTS.**BY KANSAS COUNTIES.**

Allen	62	Greenwood	15	Phillips	8
Anderson	36	Hamilton	3	Pottawatomie	15
Atchison	39	Harper	25	Pratt	19
Barber	20	Harvey	25	Rawlins	7
Barton	41	Jackson	18	Reno	76
Bourbon	33	Jefferson	33	Republic	18
Brown	52	Jewell	48	Rice	32
Butler	35	Johnson	36	Riley	13
Chase	9	Kearny	2	Rooks	6
Chautauqua	15	Kingman	14	Rush	4
Cherokee	30	Kiowa	12	Russell	17
Cheyenne	3	Labette	30	Saline	36
Clark	10	Lane	4	Scott	6
Clay	29	Leavenworth	83	Sedgwick	136
Cloud	27	Lincoln	17	Seward	4
Coffey	32	Linn	30	Shawnee	91
Comanche	9	Logan	2	Sheridan	5
Cowley	56	Lyon	28	Sherman	2
Crawford	45	Marion	24	Smith	13
Decatur	3	Marshall	32	Stafford	27
Dickinson	42	Meade	11	Stevens	3
Doniphan	22	Miami	40	Sumner	37
Douglas*	1022	Mitchell	28	Thomas	8
Edwards	11	Montgomery	63	Trego	7
Elk	17	Morris	17	Wabaunsee	28
Ellis	10	Morton	2	Wallace	4
Ellsworth	11	McPherson	38	Washington	23
Finney	16	Nemaha	28	Wichita	4
Ford	11	Neosho	42	Wilson	38
Franklin	45	Ness	2	Woodson	15
Geary	15	Norton	13	Wyandotte	206
Gove	6	Osage	26		
Graham	9	Osborne	20		
Grant	1	Ottawa	35		
Gray	4	Pawnee	9		
				Counties, 101	3,591

BY STATES AND COUNTRIES.

Arkansas	5	New York	6
California	3	Oklahoma	76
Colorado	14	Pennsylvania	1
Georgia	2	South Dakota	2
Illinois	5	Texas	15
Indiana	1	Utah	1
Iowa	10	Washington	1
Kansas	3,591	Wyoming	2
Massachusetts	5	China	1
Missouri	238	Hawaii	2
Minnesota	2	Japan	3
Montana	1	Philippine Islands	1
Nebraska	3		
New Mexico	11	Grand total	4,002

*A large number of students whose names appear in the catalogue as residents of Douglas county are so catalogued because they temporarily reside in Lawrence for the purpose of attending the University.

SUMMARY.

Total number of degrees granted.....	7,913
Degrees granted to men.....	5,227
Duplicate degrees.....	567
Number of men receiving degrees.....	4,620
Degrees granted to women.....	2,702
Duplicate degrees.....	320
Number of women receiving degrees.....	2,382
Total number of persons graduated.....	7,002
Number of men deceased.....	305
Number of women deceased.....	118
Total number deceased.....	423
Number of men graduates living.....	4,315
Number of women graduates living.....	2,264
Total number of graduates living.....	6,579
Number of honorary degrees not included above.....	9

DISTRIBUTION OF ALUMNI.

Alabama.....	5	Nebraska.....	64	Alaska.....	4
Arizona.....	26	Nevada.....	4	Bulgaria.....	1
Arkansas.....	27	New Hampshire.....	3	Burma.....	1
California.....	142	New Jersey.....	30	Central America.....	5
Colorado.....	119	New Mexico.....	28	Canada.....	12
Connecticut.....	13	New York.....	150	China.....	8
Delaware.....	2	North Carolina.....	3	Cuba.....	4
District of Columbia..	43	North Dakota.....	11	England.....	35
Florida.....	28	Ohio.....	36	France.....	75
Georgia.....	3	Oklahoma.....	170	Germany.....	2
Idaho.....	38	Oregon.....	38	Hawaii.....	1
Illinois.....	92	Pennsylvania.....	39	India.....	6
Indiana.....	25	Rhode Island.....	5	Italy.....	2
Iowa.....	39	South Carolina.....	1	Japan.....	7
Kansas.....	4123	South Dakota.....	7	Korea.....	3
Kentucky.....	6	Tennessee.....	6	Mexico.....	7
Louisiana.....	13	Texas.....	49	Philippine Islands.....	34
Maine.....	0	Utah.....	29	Scotland.....	1
Maryland.....	9	Vermont.....	2	South America.....	10
Massachusetts.....	53	Virginia.....	9	Tasmania.....	1
Michigan.....	23	Washington.....	91	Turkey.....	1
Minnesota.....	29	West Virginia.....	4	Address unknown.....	251
Mississippi.....	4	Wisconsin.....	26		
Missouri.....	590	Wyoming.....	18	Total.....	6,579
Montana.....	43	Africa.....	1		

OCCUPATIONS OF ALUMNI.**WOMEN.**

Educational work:	
Teaching in universities or colleges.....	65
Teaching in secondary schools.....	776
Teaching music.....	82
Farming.....	7
Home makers, married.....	565
Library work.....	25
Medicine.....	15
Office work.....	56
Pharmacy.....	12
Religious work.....	20
Social service work.....	27
Study.....	28
Home makers, unmarried.....	205
Writing or editing.....	18
Miscellaneous occupations.....	132
Occupations unknown.....	145
Total.....	2,264

MEN.

Advertising business.....	25
Banking and investments.....	75
Chemists.....	52
Educational work:	
Teaching or administrators in universities or colleges.....	220
Superintendents, principals of schools.....	125
Teachers in secondary schools.....	121
Teaching music.....	10
Engineering.....	656
Farming.....	97
Government service.....	40
Insurance business.....	40
Law.....	959
Manufacturing.....	16
Medicine.....	421
Mercantile business.....	163
Office holding—county, state, judicial.....	45
Pharmacy.....	341
Railway business.....	23
Real estate business.....	31
Religious work.....	54
Study.....	86
Writing or editing.....	61
Miscellaneous occupations.....	349
Occupations unknown.....	394
Total.....	4,315

GENERAL INDEX.

A.	PAGE
Administration, officers of	6, 7
Administration, State Board of.....	2
Administrative committees:	
College	113
Graduate School	65
School of Education	334
School of Engineering	191
School of Medicine	288
School of Pharmacy	288
Admission, requirements for:	
College	114
Graduate School	67
School of Education	341
School of Engineering	195
School of Fine Arts	242
School of Law	278
School of Medicine	307
School of Pharmacy	289
Advanced standing	50
College	115
School of Engineering	196
School of Medicine	308
Alumni Association	42
Alumni, distribution of	481
Alumni, occupations of	482
American Institute of Electrical Engineers	47
American Institute of Mechanical Engineers	47
American Institute of Mining Engineers	47
Analysis of food and drugs.....	422
Architectural Society	47
Associate Journalism Students, the	46
Athletics	33, 410

B.

Band	49
Bible chair, Christian Church	44
Biological series	419
Biological Survey	36
Blackfriars Club	48
Board of Administration	2, 38
Botany Club	47
Buildings	39

C.

Calendar, University	4
Campus	39
Chemical Club	46
Christian Church Bible chair.....	44
Chronological table	5
Churches	45
Civil Engineering Society	47
College of Liberal Arts and Sciences.....	30, 109
administrative committee	113
admission	114

	PAGE
College of Liberal Arts and Sciences—	
advanced standing	115
certificate, state teachers'	119
credit hour	116
curriculum	117
degrees	114
description of courses	121
enrollment	116
examinations, entrance	114
Extension Division credits allowed	115
faculty	110
fees and expenses	53, 116
music courses for College credit.....	119, 166
pharmacy courses for College credit.....	166
professional courses for College credit	119
registration	115
regulations governing election of courses.....	117
Reserve Officers' Training Corps.....	120
scholarships	116
School of Education subjects for College credit, 119, 137	
School of Engineering subjects for College credit, 119, 137	
School of Law subjects for College credit.....	119, 162
School of Medicine subjects for College credit..	119, 165
Special students	115
Concerts, University	49
Convocation	49
Correspondence study	379
classroom study of	380
clubs, study	385
courses, description of	390
faculty	380
expenses	386
extension classes	386
grades of work offered.....	383
history	383
purpose	383
regulations	384
special engineering regulations	385
system	383
University credit for	385

D.

Debating Council	48
Degrees granted	67, 114, 194, 239, 277, 289, 306
Degrees granted, total number.....	478
Distribution of alumni	481
Divisions	33, 409
athletics	33, 410
libraries	34, 412
museums	34, 414
state service work	35, 419
Summer Session	33, 353
University publications	34, 419
University Extension	33, 379
University surveys	36, 424
Vocations	36, 425
Dramatic Club	48

E.

	PAGE
Education, School of	32, 333
administrative committee	334
admission	341
advanced standing	341
advisers	341
bureau of school service	342
courses, description of	345
curriculums	336
degree in education	335
equipment	343
faculty	334
graduate policy	344
Oread Training School	344
recommendation of teachers	343
relation with College	335
relation with Kansas State Normal Schools	335
research station, U. S. Bureau of Education	342
scholarship requirements	341
state teachers' certificate	336, 340
teachers' diploma	335
teachers, training of, under Smith-Hughes law	342
Engineering bulletins	35
Engineering, School of	30, 189
administrative committee	191
admission	195, 213
advanced standing	196
buildings	40, 213
courses, description of	216
courses, five-year	192
curriculum	200, 213
degrees granted	194
departments	192
drawing rooms	214
enrollment	197
entrance examinations	196
equipment	213
experiment station	237
extension work	198
faculty	190
fees and expenses	53, 198
foreign language required	196
inadequate preparation	196
inspection trips	237
laboratories	214
lecturers	191
libraries	214
mathematics required	196
organization and purpose	192
registration	197
scholarship standing for graduation	195
societies	199
special students	197
summer work	237
technical reports and theses	236
technical societies	199
English Club	46
Engineering Experiment Station	35

	PAGE
Enrollment	51, 477
Entomological field work	35
Entomology Club	47
Entrance examinations	50
Equipment	39
buildings	39
campus	39
property and income	39
Examinations:	
entrance	50
final	52
special	52
Expenses	52
The College	53
The Correspondence Department	54
The Graduate School	54
The School of Education	54
The School of Engineering	53
The School of Fine Arts	54
The School of Law	53
The School of Medicine	53
The School of Pharmacy	53
The Summer Session	54
Health fee	54
Living expenses	55
Extension Division	35, 379
Correspondence study	383
classroom study	386
clubs, study	385
course of instruction	390
credit, University	385
expenses	386
history	383
purpose	383
regulations	384
Engineering, special	385
system, the	383
work offered, grades of	383
Department of child welfare	389
Department of general information	387
clubs, women's	387
debating and public discussion	388
films, educational motion-picture	388
lectures	387
libraries, package	388
play service	388
slides, lantern	388
Department of municipal reference	388
faculty	380

F.

Faculty of the University, The.....	8, 62, 110, 190, 240
	276, 288, 304, 334
Fees	53
Fellows	65
University	65
from Kansas colleges	66
Fellowships	56
general	56

Fellowships—	PAGE
for graduates of Kansas colleges.....	56
Fine Arts, School of.....	31, 239
admission	242
by examination	242
by certificate	242
requirements for	242, 243
advanced standing	248
art exhibitions	250
Chorus, University	250
concerts and recitals.....	250
courses, description of.....	263
courses of study.....	255
drawing and painting.....	259
organ	256
pianoforte	254
public-school art course.....	261
public-school music course.....	260
violin	257
vocal culture*	257
curricula	241
leading to degrees	241
leading to artists' certificates	242
leading to teachers' certificates	242
public-school drawing	242
public-school music	242
curriculum	254
departments	241
enrollment	248
equipment	241
examinations, entrance	248
expenses	251
rates for regular students.....	252
rates for special students.....	252
faculty	240, 241
names of	240
qualifications of	241
glee clubs	251
Museum, The Thayer Art.....	249
pianos for practice.....	251
registration	248
scholarships	251
special courses	249
special students	248
University band	251
University chorus	250
University orchestra	251
Food and drugs, analysis of.....	405
French Club	46

G.

General information	50
Geological Survey	36
Geology Club	48
German Club	46
Glee Clubs	48
women's	48
men's	48

	PAGE
Government of University of Kansas.....	38
Board of Administration.....	38
departmental faculties	38
faculties, the	38
University division committees.....	38
University Senate	38
Grades	52
Graduate School	29, 61
administrative committee	65
admission, requirements for.....	67
courses, description of.....	71
degrees granted	67
departments and equipment.....	70
faculty	62
fellows	65
from Kansas colleges.....	66
University	65
fellowships, University	69
general	69
graduates of Kansas colleges.....	69
registration	67
research committee	65
Graduate Club	42
Graduates, 1873-1919, table of.....	473
Greek Symposium	46

H.

Health, student	59
History of University of Kansas.....	36
Home Economics Club.....	48
Humanistic studies	34

I.

Information, general	50
admission	50
admission of special students.....	50
admission to advanced standing.....	50
enrollment	51
entrance examinations	50
examinations and reports.....	52
expenses of students.....	52
fees	52
living expenses	55
prizes and aids.....	55
registration	51
rooming houses	58
student health	59
Instruction, officers of.....	8
Instructors	22
Instructors, assistant	26
International Polity Club.....	48

J.

Jurisprudence Club	48
--------------------------	----

L.

Law, School of.....	31, 275
admission	278
admission to the bar.....	277
certificate of attendance.....	277

	PAGE
Law, School of—	
combined college and law course.....	280
course for mining engineering.....	286
curriculum	282
degree granted	277
description of courses.....	283
enrollment	278
equipment	279
faculty	276
fees and expenses.....	278
instruction, system of.....	280
purpose	277
practice courts	280
registration	278
schedule of courses.....	282
special students	278
student honors and activities.....	279
Summer Session	280
teaching, method of.....	280
Lectures, University	49
Libraries, The	34, 412
Lawrence public library.....	413
libraries in Topeka.....	414
memorial gifts	413
regulations	413
Kansas Academy of Science.....	414
Literary organizations	45
Loan funds	57

M.

Mathematics Club	47
Medicine, School of.....	32, 303
administrative committee	305
admission, requirements for.....	307
advanced standing	308
courses, description of.....	320
curriculum	311
degrees	306
enrollment	309
equipment	310
faculty	304
fees	309
history	306
organization	306
registration	309
schedule	312
Training School of Nurses.....	331
admission	331
course of study.....	331
equipment	331
expenses	332
faculty	331
graduation	332
promotion	332
Men's Student Council.....	43
Museums, The	34, 414
art	418
classical, the	415

Museums, The—	PAGE
collection of mammals, birds, fishes and reptiles	417
entomology	414
ethnological collection	417
herbarium, the	415
paleobotany	417
vertebrate paleontology	416
Musical organizations	48

O.

Occupations of alumni	482
Officers of administration	6, 7
the divisions	7
the schools	6
the University	6
Officers of instruction	8
assistant instructors	26
assistant professors	18
associate professors	14
instructors	22
professors	8
Orchestra	48
Organizations, University	42
civic	48
debating	48
dramatic	48
general	42
literary	45
musical	48
public occasions	49
scientific	46
religious	43
Other institutions, students from	476

P.

Pharmacy, School of	31, 287
administrative committee	288
admission	289
correspondence courses	302
curriculum	294
degrees	289
courses, description of	295
enrollment	289
equipment	290
faculty	288
fees and expenses	290
food and drug analysis	302
positions for graduates	290
purpose and organization	289
registration	289
registration, State Board of Pharmacy	290
Pharmaceutical Society	48
Phi Beta Kappa Society	45
Prizes and aids	55
Professors	8
assistant	18
associate	14

	PAGE
Property and income of the University.....	39
Publications, University	34, 419
Publications of State Geological Survey.....	425

Q.

Quill Club	46
------------------	----

R.

Recreation, general provisions for.....	411
Registration	51
Religious organizations	43
Reserve Officers' Training Corps.....	399
courses, description of.....	403
credits	402
faculty	400
purpose	401
service, condition of.....	401
Rooming houses	55, 58

S.

Scholarships	56, 117, 249
Schools of University.....	29
Science Bulletin, The.....	34
Scientific organizations	46
Senate, University	39
Sigma Xi Society.....	46
Spanish Club	46
Special students	50, 115, 197, 248, 278, 289
State chemical research.....	422
State service work.....	35, 421
analysis of food and drugs.....	35, 422
chemical research	35, 422
Engineering Experiment Station.....	35, 422
entomological field work.....	35, 421
water analysis	35, 421
weights and measures.....	35, 422
State surveys	424
Biological Survey	424
Geological Survey	424
publications of State Geological Survey.....	425
Student health	54, 59
Students:	
classification by counties, states and countries.....	480
roll by schools.....	428
Students from other institutions.....	476
Summary of degrees granted.....	478
Summer Session, The.....	33, 353
admission	362
adviser of women.....	361
amount of credit.....	363
courses, description of.....	365
courses, nature of.....	363
credit toward degrees.....	363
curriculum for teachers.....	363
dates of two terms.....	362
equipment	360
faculty	354

Summer Session, The—	PAGE
fees	364
graduate work	364
Kansan, The	361
lectures and entertainments.....	361
purpose and plan.....	359
recreation	361
registration and enrollment.....	362
Surveys, University	36
T.	
Table of graduates, 1873-1919.....	478
Table, chronological	5
U.	
University calendar	4
University extension bulletins.....	420
University News Bulletin.....	420
University organization	42
University publications	34
University Women's Association.....	42
V.	
Vesper services	49
Vocations	36, 425
W.	
Water analysis	421
Weights and measures	422
Westminster Association	45
Withdrawals	52
Woman's Forum	48
Women's Student Government Association.....	42
Y.	
Young Men's Christian Association.....	43
Young Women's Christian Association.....	44
Z.	
Zoölogy Club	47



UNIVERSITY OF ILLINOIS LIBRARY

OCT 18 1920

KANSAS STATE PRINTING PLANT

IMRI ZUMWALT, STATE PRINTER

TOPEKA. 1920

8-2676

1877 120

UNIVERSITY OF ILLINOIS-URBANA



3 0112 111993827